



AFRL-RX-WP-TM-2008-4054

**COMPLEX STRUCTURES FOR MANNED/UNMANNED
AERIAL VEHICLES**

**Delivery Order 0019: Low Temp Composite Processing
Mechanical Property Data**

Chris Ridgard

Advanced Composites Group, Inc.

JANUARY 2008

Final Report

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MATERIALS AND MANUFACTURING DIRECTORATE
WRIGHT-PATTERSON AIR FORCE BASE, OH 45433-7750
AIR FORCE MATERIEL COMMAND
UNITED STATES AIR FORCE**

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14. ABSTRACT <p>After several years of effort, a new generation of out of autoclave processable resin systems has been developed which it is believed will replace older oven vacuum bag cure (OVBC) resins such as the Advanced Composites Group, Inc. (ACG) LTM45EL material. The first of these new resins, MTM45 and MTM45-1, have been demonstrated to offer mechanical performance and toughness at a level comparable to that of state-of-the-art toughened resin systems used for military and civil airframes, while still permitting cure at relatively low temperatures out of the autoclave.</p> <p>The level of maturity of the new materials, perceived and otherwise, together with the limited amount of available performance data, is currently limiting the application of this much needed technology on aircraft programs. Significant progress has been made to address this situation by embarking on a program of work over the last three years which has put in place the baseline design allowable data and addresses manufacturability issues which arise with non-autoclave curing.</p>					
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Summary

After several years of effort funded by the Advanced Composites Group, Inc. (ACG) Internal Research and Development (IRAD) expenditure, a new generation of out of autoclave processable resin systems has been developed which it is believed will replace older oven vacuum bag cure (OVBC) resins such as ACG's LTM45EL material. The first of these new resins, MTM45 and MTM45-1, have been demonstrated to offer mechanical performance and toughness at a level comparable to that of state-of-the-art toughened resin systems used for military and civil airframes, while still permitting cure at relatively low temperatures out of the autoclave. The latter characteristic is important for prototype programs where low-cost tooling is highly desirable given the small number of parts over which tooling costs can be amortized. Once a program transitions into production, the issues are different and include the costs of ownership and operation of tools, springback, molding accuracy and associated assembly costs. MTM45 and MTM45-1 are designed as variable cure cycle materials with initial cures in the range 175°F to 350°F. It is believed that the new generation of materials, of which MTM45 is the first, provides the ability of transitioning from prototyping to production without a change of material and offering significant cost reductions in both circumstances. The basic characteristics of the new out-of-autoclave (OOA) ACG materials are summarized as follows:

Table 1. ACG Next Generation Out-of-Autoclave Systems

Resin	Form	OVBC capability	Wet Service	Comments
MTM45	Prepreg, 21 day out life	180°F – 350°F Cure (82°C – 177°C) Cure	>250°F (>121°C)	Suitable for both prototype and production
MTM45-1	Prepreg + RFI film, 21 day out life	180°F – 350°F Cure (82°C – 177°C) Cure	>250°F (>121°C)	Higher viscosity variant of MTM45.
MTM44-1	Prepreg and RFI film, 21 day out life	270°F – 350°F Cure (132°C – 177°C) Cure	>250°F (>121°C)	Further toughness improvement over MTM45
MVR444	VARTM resin, Pot life 5 hours at 180°F	180°F(82°C) infusion 200°F – 270°F Cure (93°C – 132°C Cure)	>250°F (>121°C)	Under evaluation at AFRL
MTM46	Prepreg, >60 day out life	180°F – 270°F Cure (82°C – 132°C Cure)	>220°F (>104°C)	Lower cost than MTM45, MTM45-1, Lower toughness
VTM243FRB, VTM244FRB	Prepreg, fire retardant 21 day out life	150°F – 270°F Cure (65°C – 132°C Cure)	>180°F (>82°C)	Lower cost than MTM45, MTM45-1, Lower toughness

The level of maturity of the new materials, perceived and otherwise, together with the limited amount of available performance data, is currently limiting the application of this much needed technology on aircraft programs. Significant progress has been made to address this situation by embarking on a program of work over the last three years which has put in place the baseline design allowable data and addresses the numerous manufacturability issues which arise with non-autoclave curing. A previous Air Force

funded contract, F42620-00-D-0039, RZ14, entitled “Low Temperature Composite Processing MTM45 and MTM45-1 Prepregs” and the current contract, FA8650-05-D-5807, TO00019, entitled “Complex Structures for Manned/Unmanned Aerial Vehicles” developed the processing techniques and B basis coupon level data up to laminate level on several product forms as shown in the following table and in the subsequent Excel spreadsheets. Data includes static lamina, static laminate unnotched tension and compression, static laminate open and filled hole tension, static laminate open and filled hole compression, laminate bearing, interlaminar, and durability and damage tolerance testing at subambient, ambient, elevated dry, and elevated wet conditions. The alternate cure cycles were designated “LH,” “M,” and “MH” where the LH consisted of a 180°F cure followed by a 350°F postcure, M consisted of a 250°F cure and no postcure, and MH consisted of a 250°F cure and a 350°F postcure.

Table 2. MTM45 and MTM45-1 Allowables Databases

Resin	Fiber-Aerial Wt.-Resin Wt.	Fiber Type	Cure
MTM45-1	12K AS4-145gsm-32%	Unidirectional Carbon	LH, M, MH
MTM45-1	3K CF0525 (AS4)-193gsm-36%	Plain Weave Carbon Fabric	LH, M, MH
MTM45-1	12K IM7-145gsm-32%	Unidirectional Carbon	LH, M, MH
MTM45-1	4581-288gsm-35%	8HS Astroquartz III Fabric	MH
MTM45-1	GF0103 (7781)-303gsm -35%	8HS E-glass Fabric	MH
MTM45	6K CF2412 (AS4C)-375gsm-36%	5HS Carbon Fabric	LH, M, MH
MTM45	12K AS4C-145gsm-32%	Unidirectional Carbon	LH, M, MH

The data generated under the current subcontract and contained in the separate spreadsheets were based specifically on the MTM45-1 IM7 unidirectional material and form part of this final report. The statistical analysis work on these and the other data sets is being carried out by the National Center for Advanced Material Performance (NCAMP). The databases have been generated in accordance with FAA approval procedures and are therefore be usable for commercial aircraft programs as well as military.

Test Type:	<u>Warp Tensile</u>
Test Method:	<u>ASTM D3039/D3039</u>
Condition:	<u>CTD</u>
Date of Test:	<u>2/18/05</u>

Normalization: Cured Ply Thickness: 0.0153 # Plies: 8
 Laboratory Ambient: 69 °F, 30 %RH
 Soak @ Test Environment: 5-6 Minutes
 Date In: N/A Out: N/A
 Alignment %: <5.0% Modulus/Poisson's Range: 0.1% - 0.3%

Test Report # _____
Table# _____
Raw Data, Tabular Report
Laminate Mechanical Testing

Specimen ID	Length, in.	Width, in.	Thickness, in.	Cured Ply Thickness:	Ultimate Load, lb.	Failure Mode	Ultimate Strength, ksi		Modulus, Msi		Poisson's Ratio
							Measured	Normalized	Measured	Normalized	
AITR1392-5HC-WT-E-M1-CTD-1	10.004	1.0028	0.1205	0.0151	17665	XVV	146.188	143.919	9.23	9.09	Not Tested
AITR1392-5HC-WT-E-M1-CTD-2	10.004	1.0040	0.1223	0.0153	16712	XVV	136.103	135.992	9.09	9.08	Not Tested
AITR1392-5HC-WT-E-M1-CTD-3	10.003	1.0014	0.1242	0.0155	17886	ZVV	143.808	145.923	8.81	8.94	Not Tested
AITR1392-5HC-WT-E-M1-CTD-4	10.003	1.0031	0.1246	0.0156	17497	XVV	139.991	142.508	8.67	8.82	Not Tested
AITR1392-5HC-WT-E-M2-CTD-1	10.001	1.0036	0.1201	0.0150	17566	XVV	145.737	142.998	9.36	9.18	Not Tested
AITR1392-5HC-WT-E-M2-CTD-2	10.001	1.0036	0.1225	0.0153	17351	XVV	141.133	141.248	9.08	9.09	Not Tested
AITR1392-5HC-WT-E-M2-CTD-3	10.001	1.0034	0.1239	0.0155	16626	XGM	133.734	135.373	8.65	8.75	Not Tested
AITR1392-5HC-WT-E-M2-CTD-4	10.001	1.0032	0.1251	0.0156	16204	XVV	129.115	131.963	8.82	9.01	Not Tested
Minimum	10.001	1.0014	0.1201	0.0150	16204		129.115	131.963	8.65	8.75	
Maximum	10.004	1.0040	0.1251	0.0156	17886		146.188	145.923	9.36	9.18	
Average	10.002	1.0031	0.1229	0.0154	17188		139.476	139.991	8.96	9.00	
Standard Deviation	0.0014	0.0008	0.0019	0.0002	596		6.068	4.918	0.26	0.15	
Coefficient of Variation (%)	0.01	0.08	1.52	1.52	3.47		4.35	3.51	2.95	1.63	
No. Specimens	8	8	8	8	8		8	8	8	8	

Tested By:_____ **Date:**_____

Notes:

Test Type:	<u>Warp Tensile</u>
Test Method:	<u>ASTM D3039/D3039</u>
Condition:	<u>CTD</u>
Date of Test:	<u>2/17/05</u>

Normalization: Cured Ply Thickness: 0.0153 # Plies: 8
Laboratory Ambient: 69 °F, 31 %RH
Soak @ Test Environment: 5-6 Minutes
Modulus/Poisson's Range: 0.1% - 0.3%

Test Report #_____
Table#_____
Raw Data, Tabular Report
Laminate Mechanical Testing

Specimen ID	Length, in.	Width, in.	Thickness, in.	Cured Ply Thickness:	Ultimate Load, lb.	Failure Mode	Ultimate Strength, ksi		Modulus, Msi		Poisson's Ratio
							Measured	Normalized	Measured	Normalized	
AITR1392-5HC-WT-B-LH1-CTD-1	10.004	0.9989	0.1232	0.0154	13612	LAV	110.609	111.332	9.48	9.54	Not Tested
AITR1392-5HC-WT-B-LH1-CTD-2	10.004	0.9994	0.1255	0.0157	15039	LAT	119.905	122.941	9.44	9.67	Not Tested
AITR1392-5HC-WT-B-LH1-CTD-3	10.004	0.9990	0.1266	0.0158	16030	LGT	126.746	131.095	9.37	9.69	Not Tested
AITR1392-5HC-WT-B-LH2-CTD-1	10.003	0.9992	0.1230	0.0154	16720	LAT	136.044	136.711	9.31	9.36	Not Tested
AITR1392-5HC-WT-B-LH2-CTD-2	10.003	0.9997	0.1260	0.0158	16559	LAT	131.460	135.327	9.14	9.41	Not Tested
AITR1392-5HC-WT-B-LH2-CTD-3	10.003	0.9990	0.1268	0.0159	17151	LAV	135.396	140.263	9.46	9.80	Not Tested
AITR1392-5HC-WT-F-LH3-CTD-1	10.000	1.0037	0.1152	0.0144	15812	LVV	136.751	128.707	8.67	8.16	Not Tested
AITR1392-5HC-WT-F-LH3-CTD-2	9.999	1.0022	0.1167	0.0146	15106	LGV	129.159	123.144	8.50	8.11	Not Tested
AITR1392-5HC-WT-F-LH3-CTD-3	10.001	1.0044	0.1176	0.0147	16157	LGV	136.788	131.423	9.54	9.16	Not Tested
Minimum	9.999	0.9989	0.1152	0.0144	13612		110.609	111.332	8.50	8.11	
Maximum	10.0035	1.0044	0.1268	0.0159	17151		136.788	140.263	9.54	9.80	
Average	10.002	1.0006	0.1223	0.0153	15798		129.206	128.994	9.21	9.21	
Standard Deviation	0.0017	0.0022	0.0046	0.0006	1077		8.965	8.802	0.37	0.64	
Coefficient of Variation (%)	0.0171	0.22	3.75	3.75	6.82		6.94	6.82	4.06	6.95	
No. Specimens	9	9	9	9	9		9	9	9	9	

Tested By:_____ **Date:**_____

Notes:

Longitudinal Tension Properties (LT) -- (CTD)**Strength & Modulus**

MTM45/ AS4C 12K Unidirectional Prepreg

normalizing t_{ply}

[in]

0.0055

Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
CCJA111B	A	MH1	1	1	259.076	18.886	0.343	0.090	16	SGM	0.0056	264.129	19.255
CCJA112B	A	MH1	1	1	259.223	17.145	0.305	0.090	16	SGM	0.0056	264.721	17.509
CCJA113B	A	MH1	1	1	281.464			0.090	16	SGM	0.0056	288.180	
CCJA114B	A	MH1	1	1	270.912	18.818	0.316	0.090	16	SGM	0.0056	276.300	19.192
CCJA211B	A	MH2	1	2	263.951	17.363	0.314	0.084	16	SGM	0.0052	250.753	16.494
CCJA212B	A	MH2	1	2	268.854	19.319	0.307	0.087	16	SGM	0.0054	266.003	19.114
CCJA213B	A	MH2	1	2	295.626	18.615	0.301	0.089	16	SGM	0.0055	297.753	18.749
CCJB111B	B	MH1	2	3	302.462	17.885	0.307	0.093	16	XGM/SGM	0.0058	319.647	18.901
CCJB112B	B	MH1	2	3	269.126	18.637	0.301	0.093	16	XGM/SGM	0.0058	283.806	19.654
CCJB113B	B	MH1	2	3	267.301	17.828	0.293	0.093	16	XGM/SGM	0.0058	282.843	18.865
CCJB114B	B	MH1	2	3	273.679	18.872	0.310	0.093	16	XGM/SGM	0.0058	289.229	19.944
CCJB211B	B	MH2	2	4	281.945	19.331	0.310	0.087	16	XGM/SGM	0.0054	278.848	19.118
CCJB212B	B	MH2	2	4	275.321	19.071	0.323	0.087	16	XGM/SGM	0.0054	271.880	18.833
CCJB213B	B	MH2	2	4	271.005	18.130	0.304	0.087	16	XGM/SGM	0.0054	267.412	17.889
CCJB214B	B	MH2	2	4	252.030	18.505	0.311	0.087	16	XGM/SGM	0.0054	248.498	18.246
CCJD111B	D	MH1	3	5	291.500	18.129	0.422	0.090	16	XGM,SGM	0.0056	298.125	18.541
CCJD112B	D	MH1	3	5	308.311	18.161	0.283	0.092	16	XGM,SGM	0.0057	320.807	18.897
CCJD216B	D	MH2	3	6	303.202	17.779	0.326	0.093	16	XGM, SGM	0.0058	319.626	18.742
CCJD217B	D	MH2	3	6	306.057	17.735	0.301	0.092	16	XGM, SGM	0.0057	319.274	18.501
CCJD218B	D	MH2	3	6	285.133	17.979	0.281	0.093	16	XGM, SGM	0.0058	302.414	19.069

Average **279.309** **18.326** **0.314**
 Standard Dev. **16.954** **0.635** **0.030**
 Coeff. of Var. [%] **6.070** **3.464** **9.532**
 Min. **252.030** **17.145** **0.281**
 Max. **308.311** **19.331** **0.422**
 Number of Spec. **20** **19** **19**

Average_{norm} **0.0056** **285.512** **18.711**
 Standard Dev._{norm} **22.747** **0.776**
 Coeff. of Var. [%]_{norm} **7.967** **4.145**
 Min. **0.0052** **248.498** **16.494**
 Max. **0.0058** **320.807** **19.944**
 Number of Spec. **20** **19**

**DATA REDUCTION TABLE FOR ASTM D3039
TENSILE PROPERTIES OF POLYMER MATRIX COMPOSITE MATERIALS (STRENGTH AND MODULUS)**

BATCH NAME: AFJA X1XB

CONDITION (CTD, ETD, ETW) : CTD

ACG CODE	SPECIMEN #	CURE CYCLE	AVG WIDTH [in]	AVG THICK [in]	INITIAL LOAD OFFSET [lb]	MAX LOAD [lb]	TENSILE STRENGTH [ksi]	TENSILE MODULUS [Msi]	FINAL STRAIN [microstrain]	STRAIN RANGE [microstrain]	TEST TEMP [°F]	COMMENTS/ FAILURE MODE
AFJA 11XB	IMU-LT-A-MH1-CTD-1	1	1.006	0.089	0.0	26919.2	299.225	21.617	9968.022	1000-3000	-65 F	SGM
	IMU-LT-A-MH1-CTD-2	1	1.006	0.092	0.0	26328.5	284.529	22.357	13579.954	1000-3000	-65 F	SGM
	IMU-LT-A-MH1-CTD-3	1	1.006	0.091	0.0	22871.9	249.940	22.023	12839.110	1000-3000	-65 F	SGM
	IMU-LT-A-MH1-CTD-4	1	1.005	0.091	0.0	21203.7	232.569	22.158	13362.464	1000-3000	-65 F	SGM
AFJA 21XB	IMU-LT-A-MH2-CTD-1	2	1.007	0.086	0.0							
	IMU-LT-A-MH2-CTD-2	2	1.008	0.085	0.0							
	IMU-LT-A-MH2-CTD-3	2	1.007	0.086	0.0							
	IMU-LT-A-MH2-CTD-4	2	1.008	0.086	0.0							
AFJB 11XB	IMU-LT-B-MH1-CTD-1	1	1.006	0.097	0.0	33141.5	341.421	21.962	14104.844	1000-3000	-65 F	XGM
	IMU-LT-B-MH1-CTD-2	1	1.007	0.096	0.0	31437.0	324.004	22.616	14310.692	1000-3000	-65 F	XGM
	IMU-LT-B-MH1-CTD-3	1	1.007	0.097	0.0	27876.5	286.388	22.548	13994.201	1000-3000	-65 F	XGM
	IMU-LT-B-MH1-CTD-4	1	1.007	0.095								
AFJB 21XB	IMU-LT-B-MH2-CTD-1	2	1.000	0.093	0.0	29181.548	312.896	21.220	13591.946	1000-3000	-65 F	XGM
	IMU-LT-B-MH2-CTD-2	2	1.008	0.097	0.0	32009.759	325.937	22.691	14634.534	1000-3000	-65 F	XGM
	IMU-LT-B-MH2-CTD-3	2	1.009	0.096	0.0	35823.573	370.017	22.933	14258.172	1000-3000	-65 F	XGM
	IMU-LT-B-MH2-CTD-4	2	1.008	0.095	0.0	33333.229	349.056	22.992	12853.440	1000-3000	-65 F	XGM
AFJC 11XB	IMU-LT-C-MH1-CTD-1	1	1.007	0.087								
	IMU-LT-C-MH1-CTD-2	1	1.007	0.088	0.0	26921.5	304.175	22.182	14167.631	1000-3000	-65 F	XGM
	IMU-LT-C-MH1-CTD-3	1	1.007	0.088	0.0	22565.1	254.904	22.953	12696.878	1000-3000	-65 F	XGM
	IMU-LT-C-MH1-CTD-4	1	1.007	0.088	0.0	30617.2	343.873	22.367	13605.343	1000-3000	-65 F	XGM
AFJC 21XB	IMU-LT-C-MH2-CTD-1	2	1.009	0.088								
	IMU-LT-C-MH2-CTD-2	2	1.009	0.088	0.0	30618.665	344.088	22.582	14144.664	1000-3000	-65 F	XGM
	IMU-LT-C-MH2-CTD-3	2	1.009	0.089	0.0	28226.156	313.232	21.837	13101.648	1000-3000	-65 F	XGM
	IMU-LT-C-MH2-CTD-4	2	1.009	0.089	0.0	29410.577	328.039	22.659	14645.665	1000-3000	-65 F	XGM

LOAD FRAME CAPACITY	55 kips
LOAD CELL	55000 lbs
EXTENSOMETER MODEL	N/A
STR.GAGE/EXT.MTR I.D	CEA-06-250UW-350
GAUGE FACTOR	2.105
EXCITATION VOLTAGE	5.0 volts
GAUGE RESISTANCE	350.0 ohms


AVERAGE TENSILE STRENGTH [ksi] **309.664**
 STANDARD DEVIATION [ksi] 38.088
 COEFFICIENT OF VARIATION [%] 12.300

AVERAGE TENSILE MODULUS [Msi] **22.335**
 STANDARD DEVIATION [Msi] 0.493
 COEFFICIENT OF VARIATION [%] 2.207

	NAME	DATE
DIMENSIONING		

[illegible]

Test Group: AITR1392-IMU-LT-LH-RTD

Material:	<u>MTM45-1/IM7-145-32%RW</u>	Normalization:	<u>Cured Ply Thickness:</u>	<u>0.0055</u>	#Plies:	<u>16</u>	ACG, Inc. Material & Process Laboratory Report 
Test Type:	<u>Longitudinal Tensile</u>	Condition:	<u>RTD</u>				
Test Method:	<u>MP1112 (ASTMD3039)</u>	Modulus/Poisson's Range:	<u>Chord 0.1% to 0.3%</u>				

Specimen ID	Length, in.	Width, in.	Thickness, in.	Cured Ply Thickness:	Ultimate Load, lb.	Failure Mode	Ultimate Strength ⁽¹⁾ , ksi		Modulus, Msi		Poisson's
							Measured	Normalized	Measured	Normalized	Ratio
AITR1392-IMU-LT-C-LH1-RTD-1	10.063	1.0057	0.0874	0.0055	NT		339.367	336.154	21.14	20.99	NT
AITR1392-IMU-LT-C-LH1-RTD-2	10.061	1.0054	0.0868	0.0054	NT		346.996	343.348	22.99	22.68	NT
AITR1392-IMU-LT-C-LH1-RTD-3	10.064	1.0061	0.0872	0.0054	NT		327.640	324.817	22.84	22.62	NT
AITR1392-IMU-LT-C-LH1-RTD-4	10.064	1.0060	0.0868	0.0054	NT		341.820	336.770	22.59	22.28	NT
AITR1392-IMU-LT-C-LH1-RTD-5	10.063	1.0059	0.0879	0.0055	NT						
AITR1392-IMU-LT-C-LH2-RTD-1					NT						
AITR1392-IMU-LT-C-LH2-RTD-2					NT						
AITR1392-IMU-LT-C-LH2-RTD-3					NT						
AITR1392-IMU-LT-C-LH2-RTD-4					NT						
AITR1392-IMU-LT-C-LH2-RTD-5					NT						
Minimum	10.0613	1.0054	0.0868	0.0054			327.640	324.817	21.135	20.987	
Maximum	10.0638	1.0061	0.0879	0.0055			346.996	343.348	22.985	22.680	
Average	10.0630	1.0058	0.0872	0.0055			338.956	335.272	22.387	22.144	
Standard Deviation	0.0010	0.0003	0.0005	0.0000			8.186	7.693	0.850	0.791	
Coefficient of Variation (%)	0.01	0.03	0.52	0.52			2.42	2.29	3.80	3.57	
No. Specimens	5	5	5	5			4	4	4	4	

Notes:

NT=Not Tested

NR=No Result

GE=Gage Error

FM=Failure Mode Unacceptable

(1) Derived in accordance with AI/TR/1392 Table 3a , note (1)

[illegible]

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[illegible]

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Test Group: AITR1392-IMU-OHT1-LH-RTD


[illegible]

Notes:
NT=Not Tested
NR=No Result
NA=Not Applicable
FM=Failure Mode Unacceptable

Material: <u>MTM45-1/GF0103-35%RW</u>		Normalization:		<u>Cured Ply Thickness: 0.01</u>		#Plies: <u>12</u>		ACG, Inc. Material & Process Laboratory Report			
Test Type: <u>Warp Tensile</u>		Condition:		<u>CTD</u>							
Test Method: <u>MP1112 (ASTMD3039)</u>		Modulus/Poisson's Range:		<u>Chord 0.1% to 0.3%</u>							
Specimen ID	Length, in.	Width, in.	Thickness, in.	Cured Ply Thickness:	Ultimate Load, lb.	Failure Mode	Ultimate Strength, ksi		Modulus, Msi		Poisson's Ratio
							Measured	Normalized	Measured	Normalized	
AITR1392-8HG-WT-A-MH1-CTD-1	10.004	1.0050	0.1157	0.0096	9896.00	LAT	85.106	82.056	3.73	3.60	
AITR1392-8HG-WT-A-MH1-CTD-2	9.996	1.0060	0.1167	0.0097	9907.00	LGT	84.387	81.363	3.77	3.67	
AITR1392-8HG-WT-A-MH1-CTD-3	10.004	1.0060	0.1158	0.0097	10144.00	LAT	87.077	83.957	3.87	3.73	
AITR1392-8HG-WT-A-MH1-CTD-4	9.997	1.0060	0.1194	0.0100	NT				NT		
AITR1392-8HG-WT-A-MH2-CTD-1	10.004	1.0060	0.1332	0.0111	11010.00	LAT	82.165	79.220	3.58	3.97	
AITR1392-8HG-WT-A-MH2-CTD-2	10.003	1.0060	0.1338	0.0112	10696.00	LAT	79.463	76.616	3.64	4.06	
AITR1392-8HG-WT-A-MH2-CTD-3	10.000	1.0060	0.1306	0.0109	10815.00	LWT	82.316	79.367	3.76	4.10	
AITR1392-8HG-WT-A-MH2-CTD-4	10.002	1.0050	0.1344	0.0112	NT				NT		
AITR1392-8HG-WT-B-MH1-CTD-1	9.996	1.0000	0.1170	0.0098	9589.00	LAT	81.957	79.020	3.92	3.82	
AITR1392-8HG-WT-B-MH1-CTD-2	10.004	1.0040	0.1190	0.0099	9843.00	LAT	82.385	79.433	3.85	3.82	
AITR1392-8HG-WT-B-MH1-CTD-3	10.002	1.0050	0.1190	0.0099	9695.00	LWT	81.065	78.160	3.93	3.89	
AITR1392-8HG-WT-B-MH1-CTD-4	9.996	1.0040	0.1200	0.0100	NT				NT		
AITR1392-8HG-WT-B-MH2-CTD-1	10.000	1.0060	0.1210	0.0101	8913.00	DGM	73.222	70.598	3.81	3.84	
AITR1392-8HG-WT-B-MH2-CTD-2	10.000	1.0070	0.1200	0.0100	9070.00	DGM/AGT	75.058	72.368	3.98	3.98	
AITR1392-8HG-WT-B-MH2-CTD-3	9.998	1.0060	0.1200	0.0100	9103.00	LAT	75.406	72.704	3.90	3.90	
AITR1392-8HG-WT-B-MH2-CTD-4	10.000	1.0070	0.1190	0.0099	NT				NT		
AITR1392-8HG-WT-C-MH1-CTD-1	10.000	1.0060	0.1209	0.0101	9497.00	LWT	78.084	75.286	3.63	3.66	
AITR1392-8HG-WT-C-MH1-CTD-2	10.004	1.0060	0.1212	0.0101	9131.00	DGM/LAT	74.889	72.205	3.73	3.77	
AITR1392-8HG-WT-C-MH1-CTD-3	9.997	1.0080	0.1198	0.0100	9880.00	LWT	81.816	78.885	3.74	3.73	
AITR1392-8HG-WT-C-MH1-CTD-4	9.997	1.0070	0.1180	0.0098	NT				NT		
AITR1392-8HG-WT-C-MH2-CTD-1	9.998	1.0070	0.1195	0.0100	9343.00	LWT	77.641	74.858	3.67	3.65	
AITR1392-8HG-WT-C-MH2-CTD-2	9.994	1.0070	0.1191	0.0099	9587.00	LAT	79.936	77.071	3.75	3.73	
AITR1392-8HG-WT-C-MH2-CTD-3	10.000	1.0070	0.1192	0.0099	9607.00	LAT	80.035	77.167	3.84	3.81	
AITR1392-8HG-WT-C-MH2-CTD-4	10.000	1.0070	0.1179	0.0098	NT				NT		
Minimum	9.9940	1.0000	0.1157	0.0096	8913.00		73.222	70.598	3.578	3.600	
Maximum	10.0040	1.0080	0.1344	0.0112	11010.00		87.077	83.957	3.984	4.097	
Average	9.9998	1.0058	0.1213	0.0101	9762.56		80.112	77.241	3.784	3.819	
Standard Deviation	0.0031	0.0016	0.0056	0.0005	599.56		3.806	3.670	0.113	0.143	
Coefficient of Variation (%)	0.03	0.16	4.61	4.61	6.14		4.75	4.75	2.98	3.74	
No. Specimens	24	24	24	24	18		18	18	18	18	
Notes: NT=Not Tested NR=No Result GE=Gage Error FM=Failure Mode Unacceptable B-MH2-4 Modulus from 1150 to 3150											

Input:	Test Plan Prefix	Test Plan #	Material	Test	Cure Cycle	Condition						
	AITR	1392	PWC1	WT	MH	CTD						

Test Group: AITR1392-PWC1-WT-MH-CTD

Material:	MTM45-1/CF0525-36%RW	Normalization:	Cured Ply Thickness:	0.0079	#Plies:	14	ACG, Inc. Material & Process Laboratory Report 
Test Type:	Warp Tensile	Condition:	CTD				
Test Method:	MP1112 (ASTMD3039)	Modulus/Poisson's Range:	Chord 0.1% to 0.3%				

Specimen ID	Length, in.	Width, in.	Thickness, in.	Cured Ply Thickness:	Ultimate Load, lb.	Failure Mode	Ultimate Strength, ksi		Modulus, Msi		Poisson's Ratio
							Measured	Normalized	Measured	Normalized	
AITR1392-PWC1-WT-A-MH1-CTD-1	10.068	0.9976	0.1134	0.0081	15196.00	LAT	134.326	137.727	9.05	9.28	Not Tested
AITR1392-PWC1-WT-A-MH1-CTD-2	10.056	1.0085	0.1134	0.0081	11467.00	LAT	100.268	102.806	8.80	9.02	Not Tested
AITR1392-PWC1-WT-A-MH1-CTD-3	10.088	1.0082	0.1114	0.0080	11669.00	LAT	103.897	106.527	9.35	9.42	Not Tested
AITR1392-PWC1-WT-A-MH1-CTD-4	10.078	1.0080	0.1119	0.0080	11577.00	LAT	102.637	105.236	9.39	9.50	Not Tested
AITR1392-PWC1-WT-A-MH2-CTD-1	10.057	1.0048	0.1097	0.0078	15190.00	LAT	137.807	141.296	9.59	9.51	Not Tested
AITR1392-PWC1-WT-A-MH2-CTD-2	10.052	1.0053	0.1103	0.0079	16296.00	LAT	146.964	150.684	9.58	9.56	Not Tested
AITR1392-PWC1-WT-A-MH2-CTD-3	10.048	1.0046	0.1117	0.0080	14107.00	LAT	125.715	128.898	9.27	9.37	Not Tested
AITR1392-PWC1-WT-A-MH2-CTD-4	10.052	1.0053	0.1096	0.0078	16005.00	LAT	145.261	148.939	9.64	9.55	Not Tested
AITR1392-PWC1-WT-B-MH1-CTD-1	10.038	1.0077	0.1117	0.0080	14094.00	LAT	125.213	128.383	9.52	9.61	Not Tested
AITR1392-PWC1-WT-B-MH1-CTD-2	10.050	1.0077	0.1138	0.0081	14160.00	LAT	123.478	126.604	9.24	9.51	Not Tested
AITR1392-PWC1-WT-B-MH1-CTD-3	10.052	1.0078	0.1144	0.0082	14409.00	LAB	124.978	128.142	9.17	9.49	Not Tested
AITR1392-PWC1-WT-B-MH1-CTD-4	10.031	1.0068	0.1141	0.0082	13932.00	LAT	121.279	124.349	9.24	9.53	Not Tested
AITR1392-PWC1-WT-B-MH2-CTD-1	10.013	1.0083	0.1150	0.0082	15635.00	LAT	134.837	138.251	9.24	9.60	Not Tested
AITR1392-PWC1-WT-B-MH2-CTD-2	10.006	1.0084	0.1130	0.0081	14793.00	LGT	129.821	133.108	9.41	9.61	Not Tested
AITR1392-PWC1-WT-B-MH2-CTD-3	10.006	1.0083	0.1126	0.0080	15417.00	LGT	135.791	139.229	9.14	9.31	Not Tested
AITR1392-PWC1-WT-B-MH2-CTD-4	10.008	1.0085	0.1125	0.0080	NT				NT		NT
AITR1392-PWC1-WT-C-MH1-CTD-1	10.050	0.9975	0.1148	0.0082	15586.00	LGB/LAT	136.107	139.553	9.49	9.85	Not Tested
AITR1392-PWC1-WT-C-MH1-CTD-2	10.045	0.9970	0.1144	0.0082	14244.00	LAT	124.885	128.047	9.32	9.64	Not Tested
AITR1392-PWC1-WT-C-MH1-CTD-3	10.043	0.9970	0.1149	0.0082	14954.00	LAT	130.540	133.844	9.24	9.60	Not Tested
AITR1392-PWC1-WT-C-MH1-CTD-4	10.055	0.9972	0.1125	0.0080	NT				NT		NT
AITR1392-PWC1-WT-C-MH2-CTD-1	10.064	1.0080	0.1162	0.0083	15752.00	LGT	134.484	137.888	9.54	10.03	Not Tested
AITR1392-PWC1-WT-C-MH2-CTD-2	10.052	1.0081	0.1139	0.0081	13353.00	LAT	116.292	119.237	9.47	9.76	Not Tested
AITR1392-PWC1-WT-C-MH2-CTD-3	10.052	1.0077	0.1137	0.0081	14455.00	LAT	126.161	129.355	8.87	9.12	Not Tested
AITR1392-PWC1-WT-C-MH2-CTD-4	10.062	1.0078	0.1149	0.0082	NT				NT		NT
Minimum	10.0060	0.9970	0.1096	0.0078	11467.00		100.268	102.806	8.800	9.023	
Maximum	10.0880	1.0085	0.1162	0.0083	16296.00		146.964	150.684	9.635	10.026	
Average	10.0469	1.0053	0.1131	0.0081	14394.81		126.702	129.910	9.312	9.516	
Standard Deviation	0.0212	0.0043	0.0017	0.0001	1401.67		12.678	12.999	0.226	0.226	
Coefficient of Variation (%)	0.21	0.43	1.54	1.54	9.74		10.01	10.01	2.43	2.37	
No. Specimens	24	24	24	24	21		21	21	21	21	

Notes:
NT=Not Tested
NR=No Result
GE=Gage Error
FM=Failure Mode Unacceptable

Input:	Test Plan Prefix	Test Plan #	Material	Test	Cure Cycle	Condition						
	AITR	1392	ASU1	LT	MH	CTD						

Test Group: AITR1392-ASU1-LT-MH-CTD

Material:	MTM45-1/AS4-145-32%RW	Normalization:	Cured Ply Thickness:	0.0055	#Plies:	16	ACG, Inc. Material & Process Laboratory Report
Test Type:	Longitudinal Tensile	Condition:	CTD				
Test Method:	MP1112 (ASTMD3039)	Modulus/Poisson's Range:	Chord 0.1% to 0.3%				

Specimen ID	Length, in.	Width, in.	Thickness, in.	Cured Ply Thickness:	Ultimate Load, lb.	Failure Mode	Ultimate Strength ⁽¹⁾ , ksi		Modulus, Msi		Poisson's Ratio
							Measured	Normalized	Measured	Normalized	
AITR1392-ASU1-LT-A-MH1-CTD-1	10.032	1.0058	0.0895	0.0056	NT		251.048	253.568	17.43	17.73	NT
AITR1392-ASU1-LT-A-MH1-CTD-2	10.038	1.0052	0.0920	0.0058	NT		260.450	268.392	19.34	20.22	NT
AITR1392-ASU1-LT-A-MH1-CTD-3	10.037	1.0054	0.0909	0.0057	NT		262.286	269.489	19.24	19.88	NT
AITR1392-ASU1-LT-A-MH1-CTD-4	10.040	1.0053	0.0893	0.0056	NT		278.123	279.861	NT		NT
AITR1392-ASU1-LT-A-MH2-CTD-1	10.036	0.9997	0.0862	0.0054	NT		290.524	291.734	18.65	18.27	NT
AITR1392-ASU1-LT-A-MH2-CTD-2	10.031	1.0074	0.0903	0.0056	NT		229.338	235.984	18.93	19.42	NT
AITR1392-ASU1-LT-A-MH2-CTD-3	10.039	1.0074	0.0909	0.0057	NT		255.635	260.912	18.43	19.04	NT
AITR1392-ASU1-LT-A-MH2-CTD-4	10.032	1.0070	0.0879	0.0055	NT				NT		NT
AITR1392-ASU1-LT-B-MH1-CTD-1	10.031	1.0082	0.0891	0.0056	NT				18.28	18.50	NT
AITR1392-ASU1-LT-B-MH1-CTD-2	10.031	1.0090	0.0884	0.0055	NT				19.17	19.26	NT
AITR1392-ASU1-LT-B-MH1-CTD-3	10.037	1.0084	0.0885	0.0055	NT		252.770	256.983	18.69	18.79	NT
AITR1392-ASU1-LT-B-MH1-CTD-4	10.032	1.0087	0.0877	0.0055	NT		257.881	259.053	NT		NT
AITR1392-ASU1-LT-B-MH2-CTD-1	10.036	1.0073	0.0814	0.0051	NT		287.969	278.752	20.09	18.58	NT
AITR1392-ASU1-LT-B-MH2-CTD-2	10.039	1.0066	0.0842	0.0053	NT		255.858	254.162	20.00	19.14	NT
AITR1392-ASU1-LT-B-MH2-CTD-3	10.041	1.0067	0.0819	0.0051	NT		286.222	275.217	19.74	18.36	NT
AITR1392-ASU1-LT-B-MH2-CTD-4	10.035	1.0068	0.0853	0.0053	NT		285.013	277.834	NT		NT
AITR1392-ASU1-LT-C-MH1-CTD-1	10.067	1.0083	0.0840	0.0053	NT		284.023	277.407	18.39	17.55	NT
AITR1392-ASU1-LT-C-MH1-CTD-2	10.064	1.0073	0.0841	0.0053	NT		263.728	258.184	18.79	17.96	NT
AITR1392-ASU1-LT-C-MH1-CTD-3	10.066	1.0078	0.0834	0.0052	NT		251.952	244.985	19.62	18.59	NT
AITR1392-ASU1-LT-C-MH1-CTD-4	10.067	1.0075	0.0860	0.0054	NT		286.682	283.696	NT		NT
AITR1392-ASU1-LT-C-MH2-CTD-1	10.064	1.0095	0.0881	0.0055	NT		292.729	287.961	19.90	19.92	NT
AITR1392-ASU1-LT-C-MH2-CTD-2	10.068	1.0097	0.0888	0.0055	NT		255.609	255.899	17.69	17.85	NT
AITR1392-ASU1-LT-C-MH2-CTD-3	10.065	1.0096	0.0856	0.0054	NT		247.651	244.977	18.85	18.33	NT
AITR1392-ASU1-LT-C-MH2-CTD-4	10.063	1.0095	0.0862	0.0054	NT		266.673	262.178	NT		NT
Minimum	10.0306	0.9997	0.0814	0.0051			229.338	235.984	17.426	17.550	
Maximum	10.0678	1.0097	0.0920	0.0058			292.729	291.734	20.093	20.217	
Average	10.0454	1.0073	0.0871	0.0054			266.770	265.582	18.956	18.744	
Standard Deviation	0.0149	0.0021	0.0029	0.0002			17.560	15.156	0.758	0.779	
Coefficient of Variation (%)	0.15	0.21	3.35	3.35			6.58	5.71	4.00	4.16	
No. Specimens	24	24	24	24			21	21	18	18	

Notes:
NT=Not Tested
NR=No Result
GE=Gage Error
FM=Failure Mode Unacceptable
(1) Derived in accordance with AI/TR/1392 Table 3a , note (1)

AITR1392-8HQ-WC-MH-CTD MTM45-1/4581-35% RW QUARTZ "WARP COMPRESSION"										normalizing t_{ply} [in] 0.0103		
Tested Cold/Dry @ -65°F												
ACG-UK TEST RESULTS												
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus Msi	Poisson's Ratio	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	A	MH1	1	1	107.1	3.77	0.11	0.1210	12	0.01008	104.798	
2	A	MH1	1	1	112.1	3.98	0.12	0.1200	12	0.01000	108.835	
3	A	MH1	1	1	NR	3.63	0.12	0.1210	12	0.01008	NR	
4	A	MH1	1	1	106.8	3.95	0.15	0.1210	12	0.01008	104.583	
5	A	MH2	1	2	NR	3.79	0.13	0.1200	12	0.01000	NR	
6	A	MH2	1	2	110.0	3.66	0.10	0.1200	12	0.01000	106.796	
7	A	MH2	1	2	110.4	3.80	0.12	0.1200	12	0.01000	107.155	
8	A	MH2	1	2	107.1	3.73	0.13	0.1200	12	0.01000	104.000	
9	B	MH1	2	1	101.0	3.82	0.14	0.1240	12	0.01033	101.307	
10	B	MH1	2	1	105.8	3.83	0.12	0.1240	12	0.01033	106.122	
11	B	MH1	2	1	94.1	3.74	0.12	0.1220	12	0.01017	92.911	
12	B	MH1	2	1	106.6	3.83	0.09	0.1240	12	0.01033	106.935	
13	B	MH2	2	2	92.7	3.53	0.11	0.1230	12	0.01025	92.280	
14	B	MH2	2	2	106.0	3.71	0.13	0.1230	12	0.01025	105.436	
15	B	MH2	2	2	102.7	3.87	0.16	0.1240	12	0.01033	103.032	
16	B	MH2	2	2	106.4	3.65	0.15	0.1240	12	0.01033	106.764	
17	C	MH1	3	1	90.5	3.47	0.11	0.1260	12	0.01050	92.206	
18	C	MH1	3	1	88.5	NR	NR	0.1260	12	0.01050	90.218	
19	C	MH1	3	1	88.4	3.86	0.14	0.1260	12	0.01050	90.076	
20	C	MH1	3	1	88.3	3.48	0.13	0.1260	12	0.01050	89.994	
21	C	MH2	3	2	85.4	3.45	0.12	0.1240	12	0.01033	85.646	
22	C	MH2	3	2	88.7	3.27	0.10	0.1250	12	0.01042	89.735	
23	C	MH2	3	2	89.5	3.62	0.13	0.1240	12	0.01033	89.830	
24	C	MH2	3	2	88.4	3.99	0.16	0.1240	12	0.01033	88.706	
Average					98.93	3.7143	0.12565	0.1230		Average _{norm}	0.0103	98.52
Standard Dev.					9.2725	0.1836	0.0185	0.0021		Standard Dev. _{norm}	0.0002	8.0655
Coeff. of Var. [%]					9.3730	4.9429	14.7581	1.7454		Coeff. of Var. [%] _{norm}	1.7454	8.1870
Min.					85.37	3.2700	0.0900	0.1200		Min.	0.0100	85.65
Max.					112.10	3.9900	0.1600	0.1260		Max.	0.0105	108.83
Number of Spec.					22	23	23	24		Number of Spec.	24	22

AITR1392-8HQ-WC-MH-RTD MTM45-1/4581-35% RW QUARTZ "WARP COMPRESSION"										normalizing t_{ply} [in] 0.0103		
Tested Dry @ 75°F												
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus Msi	Poisson's Ratio	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	A	MH1	1	1	92.85	3.64	0.13	0.1200	12	0.01000	90.146	
2	A	MH1	1	1	90.17	3.76	0.13	0.1200	12	0.01000	87.544	
3	A	MH1	1	1	95.52	3.65	0.13	0.1210	12	0.01008	93.511	
4	A	MH2	1	2	93.28	3.81	0.13	0.1200	12	0.01000	90.563	
5	A	MH2	1	2	86.32	3.79	0.13	0.1200	12	0.01000	83.806	
6	A	MH2	1	2	97.20	3.71	0.13	0.1200	12	0.01000	94.369	
7	B	MH1	2	1	90.41	3.70	0.13	0.1240	12	0.01033	90.703	
8	B	MH1	2	1	86.40	3.50	0.13	0.1240	12	0.01033	86.680	
9	B	MH1	2	1	91.75	3.63	0.12	0.1230	12	0.01025	91.305	
10	B	MH2	2	2	91.28	3.55	0.14	0.1240	12	0.01033	91.575	
11	B	MH2	2	2	91.57	3.79	0.13	0.1220	12	0.01017	90.385	
12	B	MH2	2	2	92.82	3.63	0.13	0.1240	12	0.01033	93.120	
13	C	MH1	3	1	74.22	3.64	0.13	0.1260	12	0.01050	75.661	
14	C	MH1	3	1	75.33	3.61	0.13	0.1260	12	0.01050	76.793	
15	C	MH1	3	1	76.69	3.48	0.13	0.1260	12	0.01050	78.179	
16	C	MH2	3	2	78.27	3.55	0.13	0.1250	12	0.01042	79.157	
17	C	MH2	3	2	76.69	3.56	0.13	0.1250	12	0.01042	77.559	
18	C	MH2	3	2	79.76	3.69	0.12	0.1250	12	0.01042	80.663	
Average					86.70	3.6494	0.1294	0.1231		Average _{norm}	0.0103	86.21
Standard Dev.					7.6984	0.0990	0.0042	0.0023		Standard Dev. _{norm}	0.0002	6.5170
Coeff. of Var. [%]					8.8797	2.7134	3.2151	1.9001		Coeff. of Var. [%] _{norm}	1.9001	7.5598
Min.					74.22	3.4800	0.1200	0.1200		Min.	0.0100	75.66
Max.					97.20	3.8100	0.1400	0.1260		Max.	0.0105	94.37
Number of Spec.					18	18	18	18		Number of Spec.	18	18

AITR1392-8HQ-WC-MH-ETW MTM45-1/4581-35% RW QUARTZ "WARP COMPRESSION"										ACG-UK TEST RESULTS		
Tested Hot/Wet @ 200°F										normalizing t_{ply} [in] 0.0103		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus Msi	Poisson's Ratio	Avg. Specimen Thicken. [in]	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	A	MH1	1	1	66.50	3.69	0.12	0.1220	12	0.01017	65.639	
2	A	MH1	1	1	64.16	3.66	0.09	0.1200	12	0.01000	62.291	
3	A	MH1	1	1	62.27	3.79	0.12	0.1210	12	0.01008	60.960	
4	A	MH1	1	1	61.31	4.06	0.14	0.1220	12	0.01017	60.516	
5	A	MH2	1	2	68.55	3.83	0.12	0.1200	12	0.01000	66.553	
6	A	MH2	1	2	62.55	3.75	0.12	0.1200	12	0.01000	60.728	
7	A	MH2	1	2	67.65	3.92	0.15	0.1190	12	0.00992	65.132	
8	A	MH2	1	2	58.66	3.79	0.12	0.1200	12	0.01000	56.951	
9	B	MH1	2	1	62.42	NR	NR	0.1240	12	0.01033	62.622	
10	B	MH1	2	1	64.82	3.80	0.13	0.1240	12	0.01033	65.030	
11	B	MH1	2	1	61.78	3.85	0.13	0.1240	12	0.01033	61.980	
12	B	MH1	2	1	59.23	4.45	0.15	0.1250	12	0.01042	59.901	
13	B	MH2	2	2	64.17	3.81	0.12	0.1240	12	0.01033	64.378	
14	B	MH2	2	2	60.59	3.74	0.13	0.1220	12	0.01017	59.806	
15	B	MH2	2	2	60.48	3.78	0.12	0.1240	12	0.01033	60.676	
16	B	MH2	2	2	61.18	3.88	0.13	0.1230	12	0.01025	60.883	
17	C	MH1	3	1	49.72	NR	NR	0.1260	12	0.01050	50.685	
18	C	MH1	3	1	52.57	NR	NR	0.1240	12	0.01033	52.740	
19	C	MH1	3	1	48.45	3.92	0.13	0.1250	12	0.01042	48.999	
20	C	MH1	3	1	50.51	3.54	0.12	0.1260	12	0.01050	51.491	
21	C	MH2	3	2	50.05	3.94	0.13	0.1240	12	0.01033	50.212	
22	C	MH2	3	2	51.37	3.76	0.13	0.1240	12	0.01033	51.536	
23	C	MH2	3	2	52.11	3.83	0.13	0.1220	12	0.01017	51.435	
24	C	MH2	3	2	51.26	NR	NR	0.1260	12	0.01050	52.255	
Average					58.85	3.8395	0.1265	0.1230		Average _{norm}	0.0102	58.48
Standard Dev.					6.3355	0.1815	0.0127	0.0021		Standard Dev _{norm}	0.0002	5.7171
Coeff. of Var. [%]					10.7658	4.7264	10.0239	1.7207		Coeff. of Var. [%] _{norm}	1.7207	9.7769
Min.					48.45	3.5400	0.0900	0.1190		Min.	0.0099	49.00
Max.					68.55	4.4500	0.1500	0.1260		Max.	0.0105	66.55
Number of Spec.					24	20	20	24		Number of Spec.	24	24

AITR1392-8HQ-WC-MH-ETW2 MTM45-1/4581-35% RW QUARTZ "WARP COMPRESSION"										normalizing t_{ply} [in] 0.0103		
Tested Hot/Wet @ 250°F												
ACG-UK TEST RESULTS												
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus Msi	Poisson's Ratio	Avg. Specimen Thckn. [in]	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	A	MH1	1	1	54.87	3.76	0.11	0.1190	12	0.00992	52.828	
2	A	MH1	1	1	56.61	NR	NR	0.1220	12	0.01017	55.877	
3	A	MH1	1	1	57.12	NR	NR	0.1200	12	0.01000	55.456	
4	A	MH1	1	1	58.17	NR	NR	0.1210	12	0.01008	56.946	
5	A	MH2	1	2	54.90	3.91	0.11	0.1200	12	0.01000	53.301	
6	A	MH2	1	2	54.09	NR	NR	0.1170	12	0.00975	51.202	
7	A	MH2	1	2	55.50	4.25	0.13	0.1200	12	0.01000	53.883	
8	A	MH2	1	2	53.64	NR	NR	0.1200	12	0.01000	52.078	
9	B	MH1	2	1	53.66	NR	NR	0.1250	12	0.01042	54.268	
10	B	MH1	2	1	54.93	4.14	0.16	0.1250	12	0.01042	55.552	
11	B	MH1	2	1	53.60	4.27	0.11	0.1240	12	0.01033	53.773	
12	B	MH1	2	1	56.22	NR	NR	0.1240	12	0.01033	56.402	
13	B	MH2	2	2	51.60	NR	NR	0.1230	12	0.01025	51.350	
14	B	MH2	2	2	54.73	NR	NR	0.1230	12	0.01025	54.464	
15	B	MH2	2	2	52.60	NR	NR	0.1240	12	0.01033	52.770	
16	B	MH2	2	2	52.39	NR	NR	0.1230	12	0.01025	52.136	
17	C	MH1	3	1	44.34	NR	NR	0.1260	12	0.01050	45.201	
18	C	MH1	3	1	45.65	NR	NR	0.1260	12	0.01050	46.536	
19	C	MH1	3	1	55.87	NR	NR	0.1240	12	0.01033	56.051	
20	C	MH1	3	1	45.36	NR	NR	0.1250	12	0.01042	45.874	
21	C	MH2	3	2	45.22	NR	NR	0.1250	12	0.01042	45.732	
22	C	MH2	3	2	45.08	NR	NR	0.1250	12	0.01042	45.591	
23	C	MH2	3	2	46.32	NR	NR	0.1220	12	0.01017	45.720	
24	C	MH2	3	2	45.65	NR	NR	0.1240	12	0.01033	45.798	
Average					52.01	4.0660	0.1240	0.1228		Average _{norm}	0.0102	51.62
Standard Dev.					4.5960	0.2230	0.0219	0.0024		Standard Dev. _{norm}	0.0002	4.1186
Coeff. of Var. [%]					8.8376	5.4846	17.6685	1.9800		Coeff. of Var. [%] _{norm}	1.9800	7.9794
Min.					44.34	3.7600	0.1100	0.1170		Min.	0.0098	45.20
Max.					58.17	4.2700	0.1600	0.1260		Max.	0.0105	56.95
Number of Spec.					24	5	5	24		Number of Spec.	24	24

<div> <div> <div>AITR1392-8HQ-FC-MH-CTD</div> <div>MTM45-1/4581-35% RW QUARTZ</div> <div>"FILL COMPRESSION"</div> <div>Tested Cold/Dry @ -65°F</div> </div> <div>ACG-UK TEST RESULTS</div> </div>										<div> <div>normalizing t_{ply}</div> <div>[in]</div> <div>0.0103</div> </div>		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus Msi	Poisson's Ratio	Avg. Specimen Thckn. [in]	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	A	MH1	1	1	97.52	3.47	0.11	0.1210	12	0.01008	95.469	
2	A	MH1	1	1	96.98	3.46	0.11	0.1230	12	0.01025	96.509	
3	A	MH1	1	1	97.66	3.71	0.15	0.1240	12	0.01033	97.976	
4	A	MH1	1	1	NR	3.58	0.12	0.1210	12	0.01008	NR	
5	A	MH2	1	2	111.54	4.11	0.11	0.1150	12	0.00958	103.779	
6	A	MH2	1	2	NR	NR	NR	0.1220	12	0.01017	NR	
7	A	MH2	1	2	104.10	3.86	0.16	0.1190	12	0.00992	100.226	
8	A	MH2	1	2	NR	3.66	0.08	0.1190	12	0.00992	NR	
9	B	MH1	2	1	84.29	3.51	0.16	0.1280	12	0.01067	87.291	
10	B	MH1	2	1	85.51	3.68	0.15	0.1240	12	0.01033	85.787	
11	B	MH1	2	1	85.69	3.65	0.15	0.1280	12	0.01067	88.740	
12	B	MH1	2	1	92.41	3.64	0.12	0.1250	12	0.01042	93.457	
13	B	MH2	2	2	84.66	3.32	0.11	0.1200	12	0.01000	82.194	
14	B	MH2	2	2	86.99	3.68	0.15	0.1210	12	0.01008	85.160	
15	B	MH2	2	2	87.08	3.58	0.13	0.1240	12	0.01033	87.362	
16	B	MH2	2	2	80.55	3.53	0.14	0.1240	12	0.01033	80.811	
17	C	MH1	3	1	91.70	3.66	0.18	0.1220	12	0.01017	90.513	
18	C	MH1	3	1	89.96	3.34	0.15	0.1280	12	0.01067	93.162	
19	C	MH1	3	1	93.23	2.97	0.10	0.1260	12	0.01050	95.040	
20	C	MH1	3	1	85.47	3.36	0.16	0.1290	12	0.01075	89.204	
21	C	MH2	3	2	91.13	3.82	0.17	0.1240	12	0.01033	91.425	
22	C	MH2	3	2	90.59	3.43	0.12	0.1270	12	0.01058	93.082	
23	C	MH2	3	2	86.90	3.50	0.15	0.1250	12	0.01042	87.884	
24	C	MH2	3	2	91.39	3.37	0.11	0.1280	12	0.01067	94.643	
Average					91.21	3.5604	0.1343	0.1236		Average _{norm}	0.0103	91.41
Standard Dev.					7.2653	0.2255	0.0257	0.0035		Standard Dev. _{norm}	0.0003	5.8161
Coeff. of Var. [%]					7.9657	6.3340	19.1521	2.8405		Coeff. of Var. [%] _{norm}	2.8405	6.3623
Min.					80.55	2.9700	0.0800	0.1150		Min.	0.0096	80.81
Max.					111.54	4.1100	0.1800	0.1290		Max.	0.0108	103.78
Number of Spec.					21	23	23	24		Number of Spec.	24	21

<div> <div> <div>AITR1392-8HQ-FC-MH-RTD</div> <div>MTM45-1/4581-35% RW QUARTZ</div> <div>"FILL COMPRESSION"</div> <div>Tested Dry @ 75°F</div> </div> <div>ACG-UK TEST RESULTS</div> </div>										<div> <div>normalizing t_{ply}</div> <div>[in]</div> <div>0.0103</div> </div>		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus Msi	Poisson's Ratio	Avg. Specimen Thicken. [in]	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	D	MH1	4	1	81.63	3.54	0.12	0.1220	12	0.01017	80.573	
2	D	MH1	4	1	85.04	3.76	0.13	0.1200	12	0.01000	82.563	
3	D	MH1	4	1	80.69	3.76	0.12	0.1200	12	0.01000	78.340	
4	A	MH2	1	2	93.21	3.62	0.13	0.1190	12	0.00992	89.741	
5	A	MH2	1	2	96.16	3.58	0.13	0.1190	12	0.00992	92.581	
6	A	MH2	1	2	94.31	3.65	0.13	0.1190	12	0.00992	90.800	
7	B	MH1	2	1	71.69	3.38	0.11	0.1240	12	0.01033	71.922	
8	B	MH1	2	1	70.33	3.53	0.12	0.1200	12	0.01000	68.282	
9	B	MH1	2	1	71.14	3.60	0.12	0.1240	12	0.01033	71.370	
10	B	MH2	2	2	72.62	3.37	0.13	0.1270	12	0.01058	74.618	
11	B	MH2	2	2	76.31	3.45	0.12	0.1280	12	0.01067	79.027	
12	B	MH2	2	2	73.29	3.47	0.13	0.1260	12	0.01050	74.713	
13	C	MH1	3	1	78.79	3.25	0.13	0.1270	12	0.01058	80.957	
14	C	MH1	3	1	78.55	3.20	0.13	0.1270	12	0.01058	80.711	
15	C	MH1	3	1	76.60	3.25	0.12	0.1290	12	0.01075	79.947	
16	C	MH2	3	2	73.71	3.22	0.12	0.1310	12	0.01092	78.123	
17	C	MH2	3	2	75.95	3.09	0.13	0.1300	12	0.01083	79.883	
18	C	MH2	3	2	73.33	3.4	0.13	0.1300	12	0.01083	77.127	
Average					79.08	3.4511	0.1250	0.1246		Average _{norm}	0.0104	79.52
Standard Dev.					8.1288	0.1962	0.0062	0.0043		Standard Dev. _{norm}	0.0004	6.5232
Coeff. of Var. [%]					10.2798	5.6841	4.9468	3.4529		Coeff. of Var. [%] _{norm}	3.4529	8.2036
Min.					70.33	3.0900	0.1100	0.1190		Min.	0.0099	68.28
Max.					96.16	3.7600	0.1300	0.1310		Max.	0.0109	92.58
Number of Spec.					18	18	18	18		Number of Spec.	18	18

AITR1392-8HQ-FC-MH-ETD MTM45-1/4581-35% RW QUARTZ "FILL COMPRESSION"										ACG-UK TEST RESULTS		
Tested DRY @ 200°F										normalizing t_{ply} [in] 0.0103		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus Msi	Poisson's Ratio	Avg. Specimen Thckn. [in]	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	D	MH1	4	1	66.79	NR	NR	0.1220	12	0.01017	65.925	
2	D	MH1	4	1	68.94	4.05	0.130	0.1220	12	0.01017	68.048	
3	D	MH1	4	1	64.32	NR	NR	0.1240	12	0.01033	64.528	
4	D	MH1	4	1	69.00	4.00	0.130	0.1240	12	0.01033	69.223	
5	A	MH2	1	2	78.96	NR	NR	0.1190	12	0.00992	76.021	
6	A	MH2	1	2	81.19	NR	NR	0.1200	12	0.01000	78.825	
7	A	MH2	1	2	76.28	NR	NR	0.1220	12	0.01017	75.293	
8	A	MH2	1	2	76.84	3.83	0.130	0.1200	12	0.01000	74.602	
9	B	MH1	2	1	63.21	3.70	0.120	0.1200	12	0.01000	61.369	
10	B	MH1	2	1	63.09	NR	NR	0.1250	12	0.01042	63.805	
11	B	MH1	2	1	62.18	NR	NR	0.1270	12	0.01058	63.890	
12	B	MH1	2	1	62.56	3.88	0.120	0.1240	12	0.01033	62.762	
13	B	MH2	2	2	61.55	NR	NR	0.1190	12	0.00992	59.259	
14	B	MH2	2	2	60.57	4.13	0.110	0.1190	12	0.00992	58.316	
15	B	MH2	2	2	61.89	3.78	0.130	0.1240	12	0.01033	62.090	
16	B	MH2	2	2	62.68	NR	NR	0.1220	12	0.01017	61.869	
17	C	MH1	3	1	65.16	3.57	0.120	0.1270	12	0.01058	66.952	
18	C	MH1	3	1	67.53	3.65	0.130	0.1280	12	0.01067	69.934	
19	C	MH1	3	1	70.43	3.70	0.110	0.1240	12	0.01033	70.658	
20	C	MH1	3	1	67.80	NR	NR	0.1270	12	0.01058	69.665	
21	C	MH2	3	2	66.68	3.50	0.130	0.1300	12	0.01083	70.133	
22	C	MH2	3	2	64.35	3.56	0.120	0.1280	12	0.01067	66.641	
23	C	MH2	3	2	69.88	3.81	0.130	0.1250	12	0.01042	70.672	
24	C	MH2	3	2	65.80	3.71	NR	0.1270	12	0.01058	67.610	
Average					67.40	3.7764	0.1238	0.1237		Average _{norm}	0.0103	67.420
Standard Dev.					5.7475	0.1886	0.0077	0.0033		Standard Dev. _{norm}	0.0003	5.3773
Coeff. of Var. [%]					8.5270	4.9947	6.2008	2.6273		Coeff. of Var. [%] _{norm}	2.6273	7.9757
Min.					60.57	3.5000	0.1100	0.1190		Min.	0.0099	58.32
Max.					81.19	4.1300	0.1300	0.1300		Max.	0.0108	78.83
Number of Spec.					24	14	13	24		Number of Spec.	24	24

<div> <div> <div>AITR1392-8HQ-FC-MH-ETW</div> <div>MTM45-1/4581-35% RW QUARTZ</div> <div>"FILL COMPRESSION"</div> <div>Tested Hot/Wet @ 200°F</div> </div> <div>ACG-UK TEST RESULTS</div> </div>										<div> <div>normalizing t_{ply}</div> <div>[in]</div> <div>0.0103</div> </div>		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus Msi	Poisson's Ratio	Avg. Specimen Thckn. [in]	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	D	MH1	4	1	58.79	3.87	0.17	0.1240	12	0.01033	58.980	
2	D	MH1	4	1	55.25	NR	NR	0.1240	12	0.01033	55.429	
3	D	MH1	4	1	52.66	3.91	0.15	0.1240	12	0.01033	52.830	
4	D	MH1	4	1	54.24	3.67	0.13	0.1230	12	0.01025	53.977	
5	A	MH2	1	2	62.83	NR	NR	0.1180	12	0.00983	59.983	
6	A	MH2	1	2	66.03	3.77	0.11	0.1190	12	0.00992	63.573	
7	A	MH2	1	2	65.41	3.65	0.11	0.1210	12	0.01008	64.034	
8	A	MH2	1	2	61.34	3.91	0.12	0.1200	12	0.01000	59.553	
9	B	MH1	2	1	45.51	4.00	0.13	0.1250	12	0.01042	46.025	
10	B	MH1	2	1	46.30	3.38	0.13	0.1250	12	0.01042	46.824	
11	B	MH1	2	1	45.51	3.64	0.13	0.1230	12	0.01025	45.289	
12	B	MH1	2	1	47.21	4.17	0.17	0.1260	12	0.01050	48.127	
13	B	MH2	2	2	46.74	3.41	0.11	0.1240	12	0.01033	46.891	
14	B	MH2	2	2	47.10	3.69	0.12	0.1240	12	0.01033	47.252	
15	B	MH2	2	2	47.52	3.57	0.13	0.1200	12	0.01000	46.136	
16	B	MH2	2	2	49.55	3.43	0.12	0.1230	12	0.01025	49.309	
17	C	MH1	3	1	43.88	3.64	0.11	0.1190	12	0.00992	42.247	
18	C	MH1	3	1	45.19	3.20	0.13	0.1290	12	0.01075	47.164	
19	C	MH1	3	1	46.14	3.39	0.11	0.1260	12	0.01050	47.036	
20	C	MH1	3	1	46.33	4.00	0.14	0.1210	12	0.01008	45.355	
21	C	MH2	3	2	45.22	3.47	0.12	0.1300	12	0.01083	47.561	
22	C	MH2	3	2	42.59	NR	NR	0.1310	12	0.01092	45.140	
23	C	MH2	3	2	47.74	3.53	0.12	0.1280	12	0.01067	49.439	
24	C	MH2	3	2	47.33	4.12	0.12	0.1290	12	0.01075	49.398	
Average					50.68	3.6867	0.1276	0.1240	Average _{norm} 0.0103 50.73			
Standard Dev.					7.1397	0.2656	0.0176	0.0036	Standard Dev _{norm} 0.0003 6.2768			
Coeff. of Var. [%]					14.0867	7.2033	13.7752	2.9126	Coeff. of Var. [%] _{norm} 2.9126 12.3726			
Min.					42.59	3.2000	0.1100	0.1180	Min. 0.0098 42.25			
Max.					66.03	4.1700	0.1700	0.1310	Max. 0.0109 64.03			
Number of Spec.					24	21	21	24	Number of Spec. 24 24			

AITR1392-8HQ-FC-MH-ETW2 MTM45-1/4581-35% RW QUARTZ "FILL COMPRESSION" Tested Hot/Wet @ 250°F										normalizing t_{ply} [in] 0.0103		
ACG-UK TEST RESULTS												
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus Msi	Poisson's Ratio	Avg. Specimen Thckn. [in]	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	D	MH1	4	1	50.23	NR	NR	0.1220	12	0.01017	49.580	
2	D	MH1	4	1	46.15	NR	NR	0.1180	12	0.00983	44.059	
3	D	MH1	4	1	51.43	NR	NR	0.1220	12	0.01017	50.764	
4	D	MH1	4	1	49.87	4.03	0.11	0.1210	12	0.01008	48.821	
5	A	MH2	1	2	50.48	4.26	0.11	0.1190	12	0.00992	48.601	
6	A	MH2	1	2	54.76	NR	NR	0.1200	12	0.01000	53.165	
7	A	MH2	1	2	53.51	NR	NR	0.1190	12	0.00992	51.519	
8	A	MH2	1	2	56.49	4.07	0.12	0.1220	12	0.01017	55.759	
9	B	MH1	2	1	40.81	NR	NR	0.1200	12	0.01000	39.621	
10	B	MH1	2	1	41.86	NR	NR	0.1240	12	0.01033	41.995	
11	B	MH1	2	1	40.39	NR	NR	0.1240	12	0.01033	40.521	
12	B	MH1	2	1	41.66	3.53	0.11	0.1240	12	0.01033	41.795	
13	B	MH2	2	2	43.03	NR	NR	0.1220	12	0.01017	42.473	
14	B	MH2	2	2	42.11	NR	NR	0.1260	12	0.01050	42.928	
15	B	MH2	2	2	43.65	3.72	0.11	0.1240	12	0.01033	43.791	
16	B	MH2	2	2	43.45	3.66	0.12	0.1260	12	0.01050	44.294	
17	C	MH1	3	1	38.04	NR	NR	0.1210	12	0.01008	37.240	
18	C	MH1	3	1	39.78	3.90	0.13	0.1290	12	0.01075	41.518	
19	C	MH1	3	1	42.17	4.48	0.14	0.1250	12	0.01042	42.648	
20	C	MH1	3	1	38.61	NR	NR	0.1280	12	0.01067	39.984	
21	C	MH2	3	2	42.38	4.59	0.14	0.1290	12	0.01075	44.232	
22	C	MH2	3	2	41.30	NR	NR	0.1240	12	0.01033	41.434	
23	C	MH2	3	2	40.57	NR	NR	0.1290	12	0.01075	42.342	
24	C	MH2	3	2	39.92	NR	NR	0.1280	12	0.01067	41.341	
Average					44.69	4.0267	0.1211	0.1236	Average _{norm} 0.0103 44.60			
Standard Dev.					5.4693	0.3658	0.0127	0.0034	Standard Dev. _{norm} 0.0003 4.7616			
Coeff. of Var. [%]					12.2374	9.0841	10.4804	2.7406	Coeff. of Var. [%] _{norm} 2.7406 10.6760			
Min.					38.04	3.5300	0.1100	0.1180	Min. 0.0098 37.24			
Max.					56.49	4.5900	0.1400	0.1290	Max. 0.0108 55.76			
Number of Spec.					24	9	9	24	Number of Spec. 24 24			

<div> <div> <div>AITR1392-8HQ-UNC1-MH-RTD</div> <div>MTM45-1/4581-35% RW QUARTZ</div> <div>"UNNOTCHED COMPRESSION"</div> </div> <div> <div>Tested Dry @ 75°F</div> </div> <div>ACG-UK TEST RESULTS</div> </div>										<div> <div>normalizing t_{ply}</div> <div>[in]</div> <div>0.0103</div> </div>		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus Msi	Poisson's Ratio	Avg. Specimen Thckn. [in]	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	D	MH1	4	1	74.26	3.67	0.30	0.1170	12	0.00975	70.295	
2	D	MH1	4	1	74.42	3.15	0.27	0.1160	12	0.00967	69.844	
3	D	MH1	4	1	73.08	3.06	0.28	0.1160	12	0.00967	68.586	
4	A	MH2	1	2	76.18	2.97	0.26	0.1160	12	0.00967	71.496	
5	A	MH2	1	2	77.26	3.04	0.28	0.1180	12	0.00983	73.760	
6	A	MH2	1	2	77.88	3.03	0.28	0.1170	12	0.00975	73.721	
7	B	MH1	2	1	75.10	2.84	0.29	0.1230	12	0.01025	74.735	
8	B	MH1	2	1	71.21	2.63	0.30	0.1240	12	0.01033	71.440	
9	B	MH1	2	1	75.99	2.96	0.30	0.1240	12	0.01033	76.236	
10	B	MH2	2	2	74.56	2.96	0.27	0.1220	12	0.01017	73.595	
11	B	MH2	2	2	74.96	2.91	0.28	0.1220	12	0.01017	73.990	
12	B	MH2	2	2	68.80	3.12	0.28	0.1200	12	0.01000	66.796	
13	C	MH1	3	1	71.33	2.85	0.27	0.1250	12	0.01042	72.138	
14	C	MH1	3	1	67.48	2.98	0.28	0.1250	12	0.01042	68.244	
15	C	MH1	3	1	71.64	2.93	0.28	0.1250	12	0.01042	72.451	
16	C	MH2	3	2	70.25	2.92	0.28	0.1220	12	0.01017	69.341	
17	C	MH2	3	2	71.81	2.84	0.28	0.1220	12	0.01017	70.880	
18	C	MH2	3	2	71.31	2.89	0.27	0.1220	12	0.01017	70.387	
Average					73.20	2.9861	0.2806	0.1209		Average _{norm}	0.0101	71.55
Standard Dev.					2.8943	0.2079	0.0111	0.0034		Standard Dev. _{norm}	0.0003	2.5028
Coeff. of Var. [%]					3.9542	6.9634	3.9563	2.7784		Coeff. of Var. [%] _{norm}	2.7784	3.4979
Min.					67.48	2.6300	0.2600	0.1160		Min.	0.0097	66.80
Max.					77.88	3.6700	0.3000	0.1250		Max.	0.0104	76.24
Number of Spec.					18	18	18	18		Number of Spec.	18	18

AITR1392-8HQ-UNC1-MH-ETW MTM45-1/4581-35% RW QUARTZ "UNNOTCHED COMPRESSION" Tested Hot/Wet @ 200°F										normalizing t_{ply} [in] 0.0103		
ACG-UK TEST RESULTS												
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus Msi	Poisson's Ratio	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	D	MH1	4	1	48.52	3.03	0.34	0.1160	12	0.00967	45.537	
2	D	MH1	4	1	52.05	2.90	0.31	0.1160	12	0.00967	48.850	
3	D	MH1	4	1	53.89	3.43	0.30	0.1170	12	0.00975	51.012	
4	D	MH1	4	1	53.34	3.07	0.32	0.1160	12	0.00967	50.060	
5	A	MH2	1	2	52.04	3.03	0.31	0.1180	12	0.00983	49.682	
6	A	MH2	1	2	47.58	3.18	0.28	0.1170	12	0.00975	45.039	
7	A	MH2	1	2	50.98	3.07	0.30	0.1170	12	0.00975	48.258	
8	A	MH2	1	2	54.21	3.46	0.40	0.1180	12	0.00983	51.754	
Average					51.58	3.1463	0.3200	0.1169		Average _{norm}	0.0097	48.77
Standard Dev.					2.4351	0.1998	0.0366	0.0008		Standard Dev. _{norm}	0.0001	2.4222
Coeff. of Var. [%]					4.7213	6.3498	11.4516	0.7140		Coeff. of Var. [%] _{norm}	0.7140	4.9662
Min.					47.58	2.9000	0.2800	0.1160		Min.	0.0097	45.04
Max.					54.21	3.4600	0.4000	0.1180		Max.	0.0098	51.75
Number of Spec.					8	8	8	8		Number of Spec.	8	8

AITR1392-8HQ-UNC1-MH-ETW2 MTM45-1/4581-35% RW QUARTZ "UNNOTCHED COMPRESSION"				ACG-UK TEST RESULTS								
Tested Hot/Wet @ 250°F								normalizing t _{ply} [in] 0.0103				
Specimen	ACG	ACG Cure	Prepreg	Cure Cycle	Strength	Modulus	Poisson's	Avg. Specimen	# Plies in	Avg. t _{ply}	Strength _{norm}	
Number	Batch #	Cycle	Lot #	Batch #	[ksi]	Msi	Ratio	Thickn. [in]	Laminate	[in]	[ksi]	
1	D	MH1	4	1	46.68	4.50	0.49	0.1150	12	0.00958	43.432	
2	D	MH1	4	1	45.55	3.15	0.35	0.1170	12	0.00975	43.118	
3	D	MH1	4	1	46.43	4.14	0.47	0.1170	12	0.00975	43.951	
4	D	MH1	4	1	45.08	NR	NR	0.1160	12	0.00967	42.308	
5	A	MH2	1	2	45.53	NR	NR	0.1180	12	0.00983	43.467	
6	A	MH2	1	2	44.75	NR	NR	0.1170	12	0.00975	42.360	
7	A	MH2	1	2	44.72	NR	NR	0.1150	12	0.00958	41.608	
8	A	MH2	1	2	42.43	NR	NR	0.1150	12	0.00958	39.478	
9	B	MH1	2	1	43.07	3.98	0.41	0.1220	12	0.01017	42.512	
10	B	MH1	2	1	42.50	3.70	0.39	0.1210	12	0.01008	41.606	
11	B	MH1	2	1	42.77	4.53	0.48	0.1220	12	0.01017	42.216	
12	B	MH1	2	1	44.09	3.54	0.39	0.1220	12	0.01017	43.519	
13	B	MH2	2	2	43.95	3.67	0.45	0.1230	12	0.01025	43.737	
14	B	MH2	2	2	43.59	NR	NR	0.1240	12	0.01033	43.731	
15	B	MH2	2	2	43.24	NR	NR	0.1240	12	0.01033	43.380	
16	B	MH2	2	2	41.36	NR	NR	0.1240	12	0.01033	41.494	
17	C	MH1	3	1	39.19	4.02	0.45	0.1250	12	0.01042	39.634	
18	C	MH1	3	1	37.97	3.56	0.39	0.1250	12	0.01042	38.400	
19	C	MH1	3	1	39.87	4.00	0.41	0.1250	12	0.01042	40.322	
20	C	MH1	3	1	37.34	NR	NR	0.1250	12	0.01042	37.763	
21	C	MH2	3	2	38.29	NR	N\	0.1220	12	0.01017	37.794	
22	C	MH2	3	2	39.15	NR	N	0.1220	12	0.01017	38.643	
23	C	MH2	3	2	39.70	3.50	N	0.1220	12	0.01017	39.186	
24	C	MH2	3	2	39.19	3.49	0.37	0.1220	12	0.01017	38.683	
Average					42.35	3.8292	0.4208	0.1208	Average _{norm}		0.0101	41.35
Standard Dev.					2.8617	0.4092	0.0458	0.0036	Standard Dev _{norm}		0.0003	2.1258
Coeff. of Var. [%]					6.7569	10.6850	10.8873	2.9454	Coeff. of Var. [%] _{norm}		2.9454	5.1412
Min.					37.34	3.1500	0.3500	0.1150	Min.		0.0096	37.76
Max.					46.68	4.5300	0.4900	0.1250	Max.		0.0104	43.95
Number of Spec.					24	13	12	24	Number of Spec.		24	24

AITR1392-8HQ-WT-MH-CTD MTM45-1/4581-35% RW QUARTZ "WARP TENSILE" Tested Cold/Dry @ -65°F										normalizing t_{ply} [in] 0.0103		
ACG-UK TEST RESULTS												
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus Msi	Poisson's Ratio	Avg. Specimen Thckn. [in]	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	A	MH1	1	1	135.91	NR	NR	0.1240	12	0.01033	136.350	
2	A	MH1	1	1	132.43	4.22	0.09	0.1220	12	0.01017	130.716	
3	A	MH1	1	1	135.93	3.71	0.14	0.1220	12	0.01017	134.170	
4	A	MH1	1	1	132.95	3.57	0.08	0.1220	12	0.01017	131.229	
5	A	MH2	1	2	122.96	3.68	0.13	0.1200	12	0.01000	119.379	
6	A	MH2	1	2	135.14	NR	NR	0.1200	12	0.01000	131.204	
7	A	MH2	1	2	109.73	3.84	0.13	0.1200	12	0.01000	106.534	
8	A	MH2	1	2	107.95	3.71	0.13	0.1200	12	0.01000	104.806	
9	B	MH1	2	1	122.10	3.67	0.13	0.1210	12	0.01008	119.532	
10	B	MH1	2	1	108.37	3.47	0.09	0.1220	12	0.01017	106.967	
11	B	MH1	2	1	120.84	3.51	0.09	0.1220	12	0.01017	119.276	
12	B	MH1	2	1	89.80	3.67	0.12	0.1220	12	0.01017	88.638	
13	B	MH2	2	2	133.21	3.76	0.17	0.1230	12	0.01025	132.563	
14	B	MH2	2	2	104.16	3.81	0.11	0.1220	12	0.01017	102.812	
15	B	MH2	2	2	124.44	3.72	0.14	0.1240	12	0.01033	124.843	
16	B	MH2	2	2	NR	3.56	0.09	0.1220	12	0.01017	NR	
17	C	MH1	3	1	77.00	3.72	0.12	0.1200	12	0.01000	74.757	
18	C	MH1	3	1	83.49	3.70	0.14	0.1240	12	0.01033	83.760	
19	C	MH1	3	1	77.60	3.54	0.12	0.1220	12	0.01017	76.595	
20	C	MH1	3	1	91.47	3.63	0.13	0.1220	12	0.01017	90.286	
21	C	MH2	3	2	132.08	4.12	0.22	0.1200	12	0.01000	128.233	
22	C	MH2	3	2	140.84	3.74	0.12	0.1220	12	0.01017	139.017	
23	C	MH2	3	2	147.76	3.62	0.12	0.1220	12	0.01017	145.847	
24	C	MH2	3	2	143.62	3.52	0.11	0.1260	12	0.01050	146.409	
Average					117.82	3.7041	0.1236	0.1219	Average _{norm} 0.0102 116.26			
Standard Dev.					21.7508	0.1801	0.0303	0.0015	Standard Dev _{norm} 0.0001 21.8236			
Coeff. of Var. [%]					18.4615	4.8628	24.5259	1.2549	Coeff. of Var. [%] _{norm} 1.2549 18.7718			
Min.					77.00	3.4700	0.0800	0.1200	Min. 0.0100 74.76			
Max.					147.76	4.2200	0.2200	0.1260	Max. 0.0105 146.41			
Number of Spec.					23	22	22	24	Number of Spec. 24 23			

<div> <div> <div>AITR1392-8HQ-WT-MH-RTD</div> <div>MTM45-1/4581-35% RW QUARTZ</div> <div>"WARP TENSILE"</div> <div>Tested Dry @ 75°F</div> </div> <div>ACG-UK TEST RESULTS</div> </div>										<div> <div>normalizing t_{ply}</div> <div>[in]</div> <div>0.0103</div> </div>		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus Msi	Poisson's Ratio	Avg. Specimen Thicken. [in]	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	A	MH1	1	1	98.77	3.62	0.13	0.1240	12	0.01033	99.090	
2	A	MH1	1	1	100.24	3.70	0.14	0.1240	12	0.01033	100.564	
3	A	MH1	1	1	91.83	3.49	0.12	0.1240	12	0.01033	92.127	
4	A	MH2	1	2	88.25	3.62	0.13	0.1220	12	0.01017	87.108	
5	A	MH2	1	2	94.15	3.58	0.13	0.1220	12	0.01017	92.931	
6	A	MH2	1	2	93.93	3.52	0.13	0.1230	12	0.01025	93.474	
7	B	MH1	2	1	102.59	3.63	0.13	0.1210	12	0.01008	100.432	
8	B	MH1	2	1	95.44	3.59	0.13	0.1210	12	0.01008	93.432	
9	B	MH1	2	1	99.61	3.67	0.12	0.1210	12	0.01008	97.515	
10	B	MH2	2	2	99.68	3.61	0.12	0.1230	12	0.01025	99.196	
11	B	MH2	2	2	99.92	3.59	0.13	0.1230	12	0.01025	99.435	
12	B	MH2	2	2	91.43	3.99	0.12	0.1230	12	0.01025	90.986	
13	C	MH1	3	1	103.13	3.55	0.14	0.1240	12	0.01033	103.464	
14	C	MH1	3	1	102.72	3.65	0.12	0.1230	12	0.01025	102.221	
15	C	MH1	3	1	101.91	3.67	0.13	0.1220	12	0.01017	100.591	
16	C	MH2	3	2	92.32	3.63	0.12	0.1240	12	0.01033	92.619	
17	C	MH2	3	2	94.03	3.65	0.12	0.1250	12	0.01042	95.095	
18	C	MH2	3	2	100.33	3.52	0.12	0.1260	12	0.01050	102.278	
Average					97.24	3.6267	0.1267	0.1231		Average _{norm}	0.0103	96.81
Standard Dev.					4.5819	0.1070	0.0069	0.0014		Standard Dev. _{norm}	0.0001	4.6735
Coeff. of Var. [%]					4.7121	2.9516	5.4157	1.1313		Coeff. of Var. [%] _{norm}	1.1313	4.8276
Min.					88.25	3.4900	0.1200	0.1210		Min.	0.0101	87.11
Max.					103.13	3.9900	0.1400	0.1260		Max.	0.0105	103.46
Number of Spec.					18	18	18	18		Number of Spec.	18	18

AITR1392-8HQ-WT-MH-ETW MTM45-1/4581-35% RW QUARTZ "WARP TENSILE" Tested Hot/Wet @ 200°F					ACG-UK TEST RESULTS					normalizing t_{ply} [in] 0.0103		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus Msi	Poisson's Ratio	Avg. Specimen Thicken. [in]	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	A	MH1	1	1	39.75	3.70	0.11	0.1240	12	0.01033	39.879	
2	A	MH1	1	1	38.58	3.66	0.12	0.1220	12	0.01017	38.081	
3	A	MH1	1	1	35.52	3.55	0.10	0.1220	12	0.01017	35.060	
4	A	MH2	1	2	39.99	3.72	0.12	0.1200	12	0.01000	38.825	
5	A	MH2	1	2	36.12	3.74	0.12	0.1210	12	0.01008	35.360	
6	A	MH2	1	2	36.76	3.75	0.12	0.1210	12	0.01008	35.987	
7	B	MH1	2	1	35.93	3.63	0.12	0.1230	12	0.01025	35.756	
8	B	MH1	2	1	33.62	4.25	0.14	0.1220	12	0.01017	33.185	
9	B	MH1	2	1	36.46	4.23	0.14	0.1220	12	0.01017	35.988	
10	B	MH2	2	2	34.37	3.58	0.11	0.1240	12	0.01033	34.481	
11	B	MH2	2	2	35.41	3.68	0.13	0.1230	12	0.01025	35.238	
12	B	MH2	2	2	31.95	3.84	0.12	0.1200	12	0.01000	31.019	
13	C	MH1	3	1	37.62	3.93	0.12	0.1230	12	0.01025	37.437	
14	C	MH1	3	1	29.00	3.96	0.12	0.1220	12	0.01017	28.625	
15	C	MH1	3	1	27.40	3.65	0.12	0.1250	12	0.01042	27.710	
16	C	MH2	3	2	27.65	3.60	0.13	0.1240	12	0.01033	27.739	
17	C	MH2	3	2	27.48	3.79	0.13	0.1250	12	0.01042	27.791	
18	C	MH2	3	2	28.07	3.55	0.11	0.1250	12	0.01042	28.388	
Average					33.98	3.7672	0.1211	0.1227		Average _{norm}	0.0102	33.70
Standard Dev.					4.3403	0.2077	0.0102	0.0016		Standard Dev. _{norm}	0.0001	4.1132
Coeff. of Var. [%]					12.7722	5.5141	8.4437	1.3115		Coeff. of Var. [%] _{norm}	1.3115	12.2065
Min.					27.40	3.5500	0.1000	0.1200		Min.	0.0100	27.71
Max.					39.99	4.2500	0.1400	0.1250		Max.	0.0104	39.88
Number of Spec.					18	18	18	18		Number of Spec.	18	18

AITR1392-8HQ-WT-MH-ETW2 MTM45-1/4581-35% RW QUARTZ "WARP TENSILE"										normalizing t_{ply} [in] 0.0103		
Tested Hot/Wet @ 250°F												
ACG-UK TEST RESULTS												
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus Msi	Poisson's Ratio	Avg. Specimen Thckn. [in]	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	A	MH1	1	1	36.27	NR	NR	0.1240	12	0.01033	36.387	
2	A	MH1	1	1	34.30	NR	NR	0.1240	12	0.01033	34.411	
3	A	MH1	1	1	32.80	NR	NR	0.1220	12	0.01017	32.375	
4	A	MH1	1	1	36.98	NR	NR	0.1220	12	0.01017	36.501	
5	A	MH2	1	2	37.06	NR	NR	0.1200	12	0.01000	35.981	
6	A	MH2	1	2	34.87	NR	0.14	0.1210	12	0.01008	34.136	
7	A	MH2	1	2	36.68	NR	0.10	0.1210	12	0.01008	35.908	
8	A	MH2	1	2	37.37	NR	NR	0.1200	12	0.01000	36.282	
9	B	MH1	2	1	29.30	NR	NR	0.1210	12	0.01008	28.684	
10	B	MH1	2	1	30.53	NR	NR	0.1220	12	0.01017	30.135	
11	B	MH1	2	1	28.70	NR	NR	0.1220	12	0.01017	28.328	
12	B	MH1	2	1	31.37	NR	NR	0.1220	12	0.01017	30.964	
13	B	MH2	2	2	30.54	4.14	0.10	0.1250	12	0.01042	30.886	
14	B	MH2	2	2	30.54	4.59	0.13	0.1240	12	0.01033	30.639	
15	B	MH2	2	2	28.93	NR	NR	0.1200	12	0.01000	28.087	
16	B	MH2	2	2	30.41	NR	NR	0.1240	12	0.01033	30.508	
17	C	MH1	3	1	25.64	NR	NR	0.1210	12	0.01008	25.101	
18	C	MH1	3	1	25.69	NR	NR	0.1230	12	0.01025	25.565	
19	C	MH1	3	1	25.03	NR	NR	0.1240	12	0.01033	25.111	
20	C	MH1	3	1	26.53	NR	NR	0.1230	12	0.01025	26.401	
21	C	MH2	3	2	28.08	3.89	0.12	0.1260	12	0.01050	28.625	
22	C	MH2	3	2	26.38	NR	NR	0.1240	12	0.01033	26.465	
23	C	MH2	3	2	26.29	NR	NR	0.1260	12	0.01050	26.800	
24	C	MH2	3	2	27.74	NR	NR	0.1230	12	0.01025	27.605	
Average					30.75	4.2067	0.1180	0.1227		Average _{norm}	0.0102	30.50
Standard Dev.					4.1154	0.3547	0.0179	0.0018		Standard Dev. _{norm}	0.0001	3.9064
Coeff. of Var. [%]					13.3829	8.4326	15.1598	1.4557		Coeff. of Var. [%] _{norm}	1.4557	12.8099
Min.					25.03	3.8900	0.1000	0.1200		Min.	0.0100	25.10
Max.					37.37	4.5900	0.1400	0.1260		Max.	0.0105	36.50
Number of Spec.					24	3	5	24		Number of Spec.	24	24

<div> <div> <div>AITR1392-8HQ-FT-MH-CTD</div> <div>MTM45-1/4581-35% RW QUARTZ</div> <div>"FILL TENSILE"</div> </div> <div> <div>Tested Cold/Dry @ -65°F</div> </div> <div>ACG-UK TEST RESULTS</div> </div>										<div> <div>normalizing t_{ply}</div> <div>[in]</div> <div>0.0103</div> </div>		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus Msi	Poisson's Ratio	Avg. Specimen Thckn. [in]	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	D	MH1	4	1	84.78	3.72	0.10	0.1210	12	0.01008	82.997	
2	D	MH1	4	1	84.20	3.55	0.11	0.1230	12	0.01025	83.791	
3	D	MH1	4	1	75.89	3.49	0.12	0.1240	12	0.01033	76.136	
4	D	MH1	4	1	72.00	3.91	0.20	0.1230	12	0.01025	71.650	
5	A	MH2	1	2	124.83	2.80	0.05	0.1230	12	0.01025	124.224	
6	A	MH2	1	2	128.17	2.77	0.08	0.1270	12	0.01058	131.696	
7	A	MH2	1	2	116.96	3.59	0.13	0.1240	12	0.01033	117.339	
8	A	MH2	1	2	132.35	3.43	0.12	0.1260	12	0.01050	134.920	
9	B	MH1	2	1	126.48	3.66	0.15	0.1230	12	0.01025	125.866	
10	B	MH1	2	1	132.15	3.73	0.15	0.1210	12	0.01008	129.370	
11	B	MH1	2	1	133.63	3.76	0.19	0.1220	12	0.01017	131.900	
12	B	MH1	2	1	114.69	3.41	0.07	0.1240	12	0.01033	115.061	
13	B	MH2	2	2	98.94	4.03	0.13	0.1230	12	0.01025	98.460	
14	B	MH2	2	2	123.19	3.68	0.14	0.1210	12	0.01008	120.599	
15	B	MH2	2	2	105.51	3.49	0.12	0.1230	12	0.01025	104.998	
16	B	MH2	2	2	89.02	3.45	0.08	0.1230	12	0.01025	88.588	
17	C	MH1	3	1	88.06	3.53	0.12	0.1230	12	0.01025	87.633	
18	C	MH1	3	1	72.04	3.64	0.13	0.1210	12	0.01008	70.525	
19	C	MH1	3	1	66.69	3.48	0.12	0.1260	12	0.01050	67.985	
20	C	MH1	3	1	78.87	3.64	0.13	0.1210	12	0.01008	77.211	
21	C	MH2	3	2	92.85	3.44	NR	0.1240	12	0.01033	93.150	
22	C	MH2	3	2	98.59	3.27	0.09	0.1250	12	0.01042	99.707	
23	C	MH2	3	2	91.23	3.40	0.11	0.1270	12	0.01058	93.740	
24	C	MH2	3	2	84.78	3.56	0.15	0.1260	12	0.01050	86.426	
Average					100.66	3.5179	0.1213	0.1235	Average _{norm} 0.0103 100.58			
Standard Dev.					22.0609	0.2819	0.0349	0.0019	Standard Dev _{norm} 0.0002 22.0896			
Coeff. of Var. [%]					21.9157	8.0138	28.8053	1.5289	Coeff. of Var. [%] _{norm} 1.5289 21.9618			
Min.					66.69	2.7700	0.0500	0.1210	Min. 0.0101 67.98			
Max.					133.63	4.0300	0.2000	0.1270	Max. 0.0106 134.92			
Number of Spec.					24	24	23	24	Number of Spec. 24 24			

AITR1392-8HQ-FT-MH-RTD MTM45-1/4581-35% RW QUARTZ "FILL TENSILE" Tested Dry @ 75°F					ACG-UK TEST RESULTS					normalizing t_{ply} [in] 0.0103		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus Msi	Poisson's Ratio	Avg. Specimen Thckn. [in]	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	D	MH1	4	1	83.25	3.50	0.12	0.1240	12	0.01033	83.519	
2	D	MH1	4	1	79.84	3.57	0.13	0.1230	12	0.01025	79.452	
3	D	MH1	4	1	92.45	3.70	0.12	0.1240	12	0.01033	92.749	
4	A	MH2	1	2	100.19	3.48	0.12	0.1230	12	0.01025	99.704	
5	A	MH2	1	2	96.13	3.41	0.12	0.1230	12	0.01025	95.663	
6	A	MH2	1	2	101.34	3.51	0.12	0.1230	12	0.01025	100.848	
7	B	MH1	2	1	96.28	3.59	0.12	0.1220	12	0.01017	95.034	
8	B	MH1	2	1	96.01	3.61	0.12	0.1230	12	0.01025	95.544	
9	B	MH1	2	1	99.11	3.58	0.13	0.1210	12	0.01008	97.025	
10	B	MH2	2	2	95.09	3.44	0.12	0.1240	12	0.01033	95.398	
11	B	MH2	2	2	88.87	3.49	0.12	0.1240	12	0.01033	89.158	
12	B	MH2	2	2	92.32	3.51	0.13	0.1240	12	0.01033	92.619	
13	C	MH1	3	1	87.97	3.49	0.12	0.1220	12	0.01017	86.831	
14	C	MH1	3	1	88.20	3.51	0.12	0.1200	12	0.01000	85.631	
15	C	MH1	3	1	87.81	3.48	0.12	0.1210	12	0.01008	85.963	
16	C	MH2	3	2	84.44	3.37	0.12	0.1270	12	0.01058	86.763	
17	C	MH2	3	2	79.82	3.33	0.12	0.1270	12	0.01058	82.016	
18	C	MH2	3	2	80.64	3.37	0.11	0.1260	12	0.01050	82.206	
Average					90.54	3.4967	0.1211	0.1234		Average _{norm}	0.0103	90.34
Standard Dev.					7.0500	0.0930	0.0047	0.0019		Standard Dev. _{norm}	0.0002	6.5313
Coeff. of Var. [%]					7.7864	2.6594	3.8923	1.5512		Coeff. of Var. [%] _{norm}	1.5512	7.2296
Min.					79.82	3.3300	0.1100	0.1200		Min.	0.0100	79.45
Max.					101.34	3.7000	0.1300	0.1270		Max.	0.0106	100.85
Number of Spec.					18	18	18	18		Number of Spec.	18	18

<div> <div> <div>AITR1392-8HQ-FT-MH-ETW</div> <div>MTM45-1/4581-35% RW QUARTZ</div> <div>"FILL TENSILE"</div> </div> <div> <div>Tested Hot/Wet @ 200°F</div> </div> </div> <div>ACG-UK TEST RESULTS</div>										<div> <div>normalizing t_{ply}</div> <div>[in]</div> <div>0.0103</div> </div>		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus Msi	Poisson's Ratio	Avg. Specimen Thckn. [in]	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	D	MH1	4	1	33.15	3.40	0.11	0.1230	12	0.01025	32.989	
2	D	MH1	4	1	31.22	3.69	0.10	0.1230	12	0.01025	31.068	
3	D	MH1	4	1	29.59	3.47	0.11	0.1200	12	0.01000	28.728	
4	D	MH1	4	1	26.78	3.78	0.12	0.1180	12	0.00983	25.567	
5	A	MH2	1	2	31.47	3.29	0.11	0.1240	12	0.01033	31.572	
6	A	MH2	1	2	32.12	3.69	0.11	0.1200	12	0.01000	31.184	
7	A	MH2	1	2	31.34	NR	NR	0.1240	12	0.01033	31.441	
8	A	MH2	1	2	35.03	3.69	0.12	0.1230	12	0.01025	34.860	
9	B	MH1	2	1	23.23	3.46	0.10	0.1230	12	0.01025	23.117	
10	B	MH1	2	1	24.37	4.33	0.12	0.1220	12	0.01017	24.055	
11	B	MH1	2	1	24.23	3.63	0.11	0.1230	12	0.01025	24.112	
12	B	MH1	2	1	24.57	3.50	0.11	0.1220	12	0.01017	24.252	
13	B	MH2	2	2	26.87	3.42	0.11	0.1240	12	0.01033	26.957	
14	B	MH2	2	2	27.20	3.38	0.11	0.1240	12	0.01033	27.288	
15	B	MH2	2	2	27.37	3.34	0.11	0.1240	12	0.01033	27.459	
16	C	MH1	2	1	25.58	3.40	0.10	0.1240	12	0.01033	25.663	
17	C	MH1	3	1	25.45	3.76	0.11	0.1240	12	0.01033	25.532	
18	C	MH1	3	1	22.23	3.93	0.12	0.1230	12	0.01025	22.122	
19	C	MH2	3	2	21.03	3.31	0.12	0.1280	12	0.01067	21.779	
20	C	MH2	3	2	23.92	3.84	0.11	0.1270	12	0.01058	24.578	
21	C	MH2	3	2	20.58	3.40	0.12	0.1270	12	0.01058	21.146	
Average					27.02	3.5855	0.1115	0.1233		Average _{norm}	0.0103	26.93
Standard Dev.					4.1250	0.2589	0.0067	0.0023		Standard Dev. _{norm}	0.0002	3.9518
Coeff. of Var. [%]					15.2689	7.2206	6.0163	1.8725		Coeff. of Var. [%] _{norm}	1.8725	14.6760
Min.					20.58	3.2900	0.1000	0.1180		Min.	0.0098	21.15
Max.					35.03	4.3300	0.1200	0.1280		Max.	0.0107	34.86
Number of Spec.					21	20	20	21		Number of Spec.	21	21

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AITR1392-8HQ-UNT1-MH-RTD MTM45-1/4581-35% RW QUARTZ "UNNOTCHED TENSILE"				ACG-UK TEST RESULTS				normalizing t _{ply} [in] 0.0103				
Tested Dry @ 75°F												
Specimen	ACG	ACG Cure	Prepreg	Cure Cycle	Strength	Modulus	Poisson's	Avg. Specimen	# Plies in	Avg. t _{ply}	Strength _{norm}	
Number	Batch #	Cycle	Lot #	Batch #	[ksi]	Msi	Ratio	Thickn. [in]	Laminate	[in]	[ksi]	
1	A	MH1	1	1	79.22	2.91	0.30	0.1180	12	0.00983	75.631	
2	A	MH1	1	1	80.32	2.93	0.30	0.1190	12	0.00992	77.331	
3	A	MH1	1	1	77.84	2.96	0.30	0.1190	12	0.00992	74.943	
4	A	MH2	1	2	73.77	2.85	0.33	0.1220	12	0.01017	72.815	
5	A	MH2	1	2	75.55	2.91	0.33	0.1220	12	0.01017	74.572	
6	A	MH2	1	2	74.92	2.95	0.32	0.1220	12	0.01017	73.950	
7	B	MH1	2	1	78.96	2.86	0.29	0.1230	12	0.01025	78.577	
8	B	MH1	2	1	81.18	2.94	.2+9	0.1240	12	0.01033	81.443	
9	B	MH1	2	1	79.24	2.93	0.29	0.1240	12	0.01033	79.496	
10	B	MH2	2	2	74.98	2.92	0.29	0.1240	12	0.01033	75.223	
11	B	MH2	2	2	77.64	2.86	0.28	0.1240	12	0.01033	77.891	
12	B	MH2	2	2	77.77	2.91	0.28	0.1240	12	0.01033	78.022	
13	C	MH1	3	1	73.83	2.90	0.28	0.1260	12	0.01050	75.264	
14	C	MH1	3	1	72.75	2.87	0.28	0.1260	12	0.01050	74.163	
15	C	MH1	3	1	74.02	2.92	0.26	0.1260	12	0.01050	75.457	
16	C	MH2	3	2	76.61	2.93	0.27	0.1260	12	0.01050	78.098	
17	C	MH2	3	2	75.00	2.90	0.29	0.1260	12	0.01050	76.456	
18	C	MH2	3	2	75.36	2.98	0.30	0.1260	12	0.01050	76.823	
Average					76.61	2.9128	0.2935	0.1234	Average _{norm} 0.0103 76.45			
Standard Dev.					2.4972	0.0356	0.0193	0.0026	Standard Dev. _{norm} 0.0002 2.1959			
Coeff. of Var. [%]					3.2597	1.2227	6.5908	2.1196	Coeff. of Var. [%] _{norm} 2.1196 2.8722			
Min.					72.75	2.8500	0.2600	0.1180	Min. 0.0098 72.82			
Max.					81.18	2.9800	0.3300	0.1260	Max. 0.0105 81.44			
Number of Spec.					18	18	17	18	Number of Spec. 18 18			

<div> <div> <div>AITR1392-8HQ-UNT1-MH-ETW2</div> <div>MTM45-1/4581-35% RW QUARTZ</div> <div>"UNNOTCHED TENSILE"</div> <div>Tested Hot/Wet @ 250°F</div> </div> <div>ACG-UK TEST RESULTS</div> </div>										<div> <div>normalizing t_{ply}</div> <div>[in]</div> <div>0.0103</div> </div>		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus Msi	Poisson's Ratio	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	A	MH1	1	1	26.22	NR	NR	0.1150	12	0.00958	24.396	
2	A	MH1	1	1	27.94	NR	NR	0.1180	12	0.00983	26.674	
3	A	MH1	1	1	29.25	NR	NR	0.1180	12	0.00983	27.925	
4	A	MH1	1	1	28.80	NR	NR	0.1180	12	0.00983	27.495	
5	A	MH2	1	2	26.17	NR	NR	0.1210	12	0.01008	25.619	
6	A	MH2	1	2	28.50	NR	NR	0.1220	12	0.01017	28.131	
7	A	MH2	1	2	28.83	2.89	0.41	0.1210	12	0.01008	28.224	
8	A	MH2	1	2	27.36	NR	NR	0.1220	12	0.01017	27.006	
Average					27.88	2.8900	0.4100	0.1194		Average _{norm}	0.0099	26.93
Standard Dev.					1.1931	NA	NA	0.0025		Standard Dev. _{norm}	0.0002	1.3436
Coeff. of Var. [%]					4.2787	NA	NA	2.0972		Coeff. of Var. [%] _{norm}	2.0972	4.9884
Min.					26.17	2.8900	0.4100	0.1150		Min.	0.0096	24.40
Max.					29.25	2.8900	0.4100	0.1220		Max.	0.0102	28.22
Number of Spec.					8	1	1	8		Number of Spec.	8	8

<div> <div> <div>AITR1392-8HQ-OHT1-MH-CTD</div> <div>MTM45-1/4581-35% RW QUARTZ</div> <div>"OPEN HOLE TENSILE 1"</div> <div>Tested Cold/Dry @ -65°F</div> </div> <div>ACG-UK TEST RESULTS</div> </div>										<div> <div>normalizing t_{ply}</div> <div>[in]</div> <div>0.0103</div> </div>		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Load (lbs)	Avg Width (in)	Avg Thickness (in)	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	A	MH1	1	1	51.22	9234	1.496	0.120	12	0.01000	49.728	
2	A	MH1	1	1	52.68	9189	1.497	0.117	12	0.00975	49.867	
3	A	MH2	1	2	50.63	9250	1.497	0.122	12	0.01017	49.975	
4	A	MH2	1	2	52.28	9490	1.497	0.121	12	0.01008	51.180	
5	B	MH1	2	1	54.06	9897	1.495	0.122	12	0.01017	53.360	
6	B	MH1	2	1	52.29	9420	1.495	0.120	12	0.01000	50.767	
7	B	MH1	2	1	52.68	9748	1.497	0.124	12	0.01033	52.850	
8	B	MH2	2	2	50.96	9425	1.496	0.124	12	0.01033	51.125	
9	B	MH2	2	2	52.27	9670	1.496	0.124	12	0.01033	52.439	
10	B	MH2	2	2	50.53	9346	1.496	0.124	12	0.01033	50.694	
11	C	MH1	3	1	48.92	9160	1.496	0.125	12	0.01042	49.474	
12	C	MH1	3	1	49.97	9389	1.496	0.126	12	0.01050	50.940	
13	C	MH1	3	1	49.70	9304	1.495	0.125	12	0.01042	50.263	
14	C	MH2	3	2	48.20	9113	1.496	0.126	12	0.01050	49.136	
15	C	MH2	3	2	49.27	9157	1.494	0.124	12	0.01033	49.429	
16	C	MH2	3	2	49.12	9227	1.496	0.126	12	0.01050	50.074	
Average					50.92	9376	1.496	0.123		Average _{norm}	0.0103	50.71
Standard Dev.					1.6670	227.573	0.0009	0.0026		Standard Dev. _{norm}	0.0002	1.2519
Coeff. of Var. [%]					3.2735	2.4271	0.0571	2.0944		Coeff. of Var. [%] _{norm}	2.0944	2.4690
Min.					48.20	9113	1.494	0.117		Min.	0.0098	49.14
Max.					54.06	9897	1.497	0.126		Max.	0.0105	53.36
Number of Spec.					16	16	16	16		Number of Spec.	16	16

<div> <div> <div>AITR1392-8HQ-OHT1-MH-RTD</div> <div>MTM45-1/4581-35% RW QUARTZ</div> <div>"OPEN HOLE TENSILE 1"</div> <div>Tested Dry @ 75°F</div> </div> <div>ACG-UK TEST RESULTS</div> </div>										<div> <div>normalizing t_{ply}</div> <div>[in]</div> <div>0.0103</div> </div>		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Load (lbs)	Avg Width (in)	Avg Thickness (in)	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	A	MH1	1	1	41.17	7499	1.497	0.122	12	0.01017	40.637	
2	A	MH1	1	1	41.23	7459	1.497	0.121	12	0.01008	40.363	
3	A	MH1	1	1	41.08	7412	1.498	0.120	12	0.01000	39.883	
4	A	MH2	1	2	41.56	7423	1.497	0.119	12	0.00992	40.013	
5	A	MH2	1	2	42.21	7513	1.497	0.119	12	0.00992	40.639	
6	A	MH2	1	2	41.06	7450	1.496	0.121	12	0.01008	40.196	
7	B	MH1	2	1	42.48	7861	1.497	0.124	12	0.01033	42.617	
8	B	MH1	2	1	42.40	7816	1.496	0.123	12	0.01025	42.194	
9	B	MH1	2	1	42.80	7863	1.496	0.123	12	0.01025	42.592	
10	B	MH2	2	2	42.16	7884	1.498	0.125	12	0.01042	42.638	
11	B	MH2	2	2	42.33	7742	1.498	0.122	12	0.01017	41.782	
12	B	MH2	2	2	42.28	7774	1.497	0.123	12	0.01025	42.075	
13	C	MH1	3	1	39.22	7344	1.496	0.125	12	0.01042	39.664	
14	C	MH1	3	1	39.98	7430	1.494	0.124	12	0.01033	40.109	
15	C	MH1	3	1	38.45	7219	1.495	0.126	12	0.01050	39.197	
16	C	MH2	3	2	39.17	7326	1.494	0.125	12	0.01042	39.614	
17	C	MH2	3	2	39.29	7358	1.496	0.125	12	0.01042	39.735	
18	C	MH2	3	2	39.05	7338	1.496	0.126	12	0.01050	39.808	
Average					41.00	7540	1.496	0.123		Average _{norm}	0.0102	40.76
Standard Dev.					1.4307	219.3389	0.0012	0.0023		Standard Dev. _{norm}	0.0002	1.1964
Coeff. of Var. [%]					3.4900	2.9092	0.0799	1.8394		Coeff. of Var. [%] _{norm}	1.8394	2.9348
Min.					38.45	7219	1.494	0.119		Min.	0.0099	39.20
Max.					42.80	7884	1.498	0.126		Max.	0.0105	42.64
Number of Spec.					18	18	18	18		Number of Spec.	18	18

AITR1392-8HQ-OHT1-MH-ETW MTM45-1/4581-35% RW QUARTZ "OPEN HOLE TENSILE 1" Tested Hot/Wet @ 200°F					ACG-UK TEST RESULTS					normalizing t_{ply} [in] 0.0103		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Load (lbs)	Avg Width (in)	Avg Thickness (in)	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	A	MH1	1	1	14.15	2588	1.498	0.122	12	0.01017	13.967	
2	A	MH1	1	1	14.50	2613	1.496	0.120	12	0.01000	14.078	
3	A	MH1	1	1	14.24	2608	1.496	0.122	12	0.01017	14.056	
4	A	MH2	1	2	14.28	2584	1.497	0.121	12	0.01008	13.980	
5	A	MH2	1	2	14.06	2552	1.497	0.121	12	0.01008	13.764	
6	A	MH2	1	2	14.37	2543	1.498	0.118	12	0.00983	13.719	
Average					14.27	2581	1.4970	0.121		Average _{norm}	0.0101	13.93
Standard Dev.					0.1564	28.6193	0.0009	0.0015		Standard Dev. _{norm}	0.0001	0.1506
Coeff. of Var. [%]					1.0964	1.1087	0.0597	1.2477		Coeff. of Var. [%] _{norm}	1.2477	1.0813
Min.					14.06	2543	1.496	0.118		Min.	0.0098	13.72
Max.					14.50	2613	1.498	0.122		Max.	0.0102	14.08
Number of Spec.					6	6	6	6		Number of Spec.	6	6

<div> <div> <div>AITR1392-8HQ-OHT1-MH-ETW2</div> <div>MTM45-1/4581-35% RW QUARTZ</div> <div>"OPEN HOLE TENSILE 1"</div> <div>Tested Hot/Wet @ 250°F</div> </div> <div>ACG-UK TEST RESULTS</div> </div>										<div> <div>normalizing t_{ply}</div> <div>[in]</div> <div>0.0103</div> </div>		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Load (lbs)	Avg Width (in)	Avg Thickness (in)	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	A	MH1	1	1	13.63	2449	1.496	0.120	12	0.01000	13.233	
2	A	MH1	1	1	13.31	2408	1.498	0.121	12	0.01008	13.030	
3	A	MH1	1	1	12.83	2350	1.496	0.122	12	0.01017	12.664	
4	A	MH2	1	2	13.32	2377	1.496	0.119	12	0.00992	12.824	
5	A	MH2	1	2	12.88	2337	1.496	0.121	12	0.01008	12.609	
6	A	MH2	1	2	12.93	2323	1.496	0.120	12	0.01000	12.553	
7	B	MH1	2	1	11.78	2179	1.496	0.124	12	0.01033	11.818	
8	B	MH1	2	1	12.48	2197	1.496	0.118	12	0.00983	11.915	
9	B	MH1	2	1	11.63	2159	1.496	0.124	12	0.01033	11.668	
10	B	MH2	2	2	11.95	2204	1.497	0.123	12	0.01025	11.892	
11	B	MH2	2	2	12.31	2278	1.497	0.124	12	0.01033	12.350	
12	B	MH2	2	2	12.15	2256	1.497	0.124	12	0.01033	12.189	
13	C	MH1	3	1	12.06	2235	1.495	0.124	12	0.01033	12.099	
14	C	MH1	3	1	11.74	2177	1.496	0.124	12	0.01033	11.778	
15	C	MH1	3	1	11.99	2247	1.496	0.125	12	0.01042	12.126	
16	C	MH2	3	2	11.26	2123	1.496	0.126	12	0.01050	11.479	
17	C	MH2	3	2	11.07	2058	1.495	0.124	12	0.01033	11.106	
18	C	MH2	3	2	11.40	2155	1.496	0.126	12	0.01050	11.621	
Average					12.26	2251	1.496	0.1227		Averagenorm	0.0102	12.16
Standard Dev.					0.7509	105.7834	0.0007	0.0024		Standard Dev.norm	0.0002	0.5690
Coeff. of Var. [%]					6.1240	4.7001	0.0473	1.9324		Coeff. of Var. [%]norm	1.9324	4.6779
Min.					11.07	2058	1.495	0.1180		Min.	0.0098	11.11
Max.					13.63	2449	1.498	0.1260		Max.	0.0105	13.23
Number of Spec.					18	18	18	18		Number of Spec.	18	18

AITR1392-8HQ-OHT2-MH-CTD MTM45-1/4581-35% RW QUARTZ "OPEN HOLE TENSILE 2" Tested Cold/Dry @ -65°F					ACG-UK TEST RESULTS					normalizing t_{ply} [in] 0.0103		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Load (lbs)	Avg Width (in)	Avg Thickness (in)	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	A	MH1	1	1	44.80	10258	1.495	0.153	15	0.01020	44.365	
2	A	MH1	1	1	44.22	10245	1.497	0.155	15	0.01033	44.363	
3	A	MH1	1	1	43.48	10070	1.497	0.155	15	0.01033	43.621	
4	A	MH2	1	2	44.51	10065	1.496	0.151	15	0.01007	43.502	
5	A	MH2	1	2	44.88	10292	1.497	0.153	15	0.01020	44.444	
6	A	MH2	1	2	45.42	10389	1.497	0.153	15	0.01020	44.979	
Average					44.55	10220	1.4965	0.153		Average _{norm}	0.0102	44.21
Standard Dev.					0.6609	128.3268	0.0008	0.0015		Standard Dev. _{norm}	0.0001	0.5555
Coeff. of Var. [%]					1.4834	1.2557	0.0559	0.9819		Coeff. of Var. [%] _{norm}	0.9819	1.2564
Min.					43.48	10065	1.495	0.151		Min.	0.0101	43.50
Max.					45.42	10389	1.497	0.155		Max.	0.0103	44.98
Number of Spec.					6	6	6	6		Number of Spec.	6	6

AITR1392-8HQ-OHT2-MH-RTD MTM45-1/4581-35% RW QUARTZ "OPEN HOLE TENSILE 2" Tested Dry @ 75°F					ACG-UK TEST RESULTS					normalizing t_{ply} [in] 0.0103		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Load (lbs)	Avg Width (in)	Avg Thickness (in)	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	A	MH1	1	1	36.43	8445	1.494	0.155	15	0.01033	36.548	
2	A	MH1	1	1	35.56	8268	1.495	0.156	15	0.01040	35.905	
3	A	MH1	1	1	36.90	8506	1.498	0.154	15	0.01027	36.781	
4	A	MH2	1	2	36.35	8308	1.496	0.153	15	0.01020	35.997	
5	A	MH2	1	2	36.25	8288	1.497	0.153	15	0.01020	35.898	
6	A	MH2	1	2	37.37	8389	1.496	0.150	15	0.01000	36.282	
Average					36.48	8367	1.496	0.154		Average _{norm}	0.0102	36.24
Standard Dev.					0.6144	95.301	0.0014	0.0021		Standard Dev. _{norm}	0.0001	0.3679
Coeff. of Var. [%]					1.6842	1.1390	0.0945	1.3509		Coeff. of Var. [%] _{norm}	1.3509	1.0152
Min.					35.56	8268	1.494	0.150		Min.	0.0100	35.90
Max.					37.37	8506	1.498	0.156		Max.	0.0104	36.78
Number of Spec.					6	6	6	6		Number of Spec.	6	6

AITR1392-8HQ-OHT2-MH-ETW2 MTM45-1/4581-35% RW QUARTZ "OPEN HOLE TENSILE 2" Tested Hot/Wet @ 250°F					ACG-UK TEST RESULTS					normalizing t_{ply} [in] 0.0103		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Load (lbs)	Avg Width (in)	Avg Thickness (in)	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	A	MH1	1	1	13.04	3002	1.496	0.154	15	0.01027	12.998	
2	A	MH1	1	1	12.89	2968	1.496	0.154	15	0.01027	12.848	
3	A	MH1	1	1	12.48	2860	1.497	0.153	15	0.01020	12.359	
4	A	MH2	1	2	13.25	3006	1.496	0.152	15	0.01013	13.036	
5	A	MH2	1	2	12.84	2905	1.496	0.151	15	0.01007	12.549	
6	A	MH2	1	2	12.78	2903	1.498	0.152	15	0.01013	12.573	
Average					12.88	2941	1.4965	0.153		Average _{norm}	0.0102	12.73
Standard Dev.					0.2585	59.9589	0.0008	0.0012		Standard Dev. _{norm}	0.0001	0.2735
Coeff. of Var. [%]					2.0073	2.0390	0.0559	0.7933		Coeff. of Var. [%] _{norm}	0.7933	2.1492
Min.					12.48	2860	1.496	0.151		Min.	0.0101	12.36
Max.					13.25	3006	1.498	0.154		Max.	0.0103	13.04
Number of Spec.					6	6	6	6		Number of Spec.	6	6

AITR1392-8HQ-OHT3-MH-CTD MTM45-1/4581-35% RW QUARTZ "OPEN HOLE TENSILE 3" Tested Cold/Dry @ -65°F					ACG-UK TEST RESULTS					normalizing t_{ply} [in] 0.0103		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Load (lbs)	Avg Width (in)	Avg Thickness (in)	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	A	MH1	1	1	63.89	14323	1.498	0.150	15	0.01000	62.029	
2	A	MH1	1	1	65.87	14871	1.497	0.151	15	0.01007	64.378	
3	A	MH1	1	1	63.42	14532	1.496	0.153	15	0.01020	62.804	
4	A	MH2	1	2	61.25	14154	1.497	0.154	15	0.01027	61.052	
5	A	MH2	1	2	63.72	14570	1.497	0.153	15	0.01020	63.101	
6	A	MH2	1	2	64.62	14585	1.497	0.151	15	0.01007	63.156	
Average					63.80	14506	1.497	0.152		Average _{norm}	0.0101	62.75
Standard Dev.					1.5244	245.614	0.0006	0.0015		Standard Dev. _{norm}	0.0001	1.1265
Coeff. of Var. [%]					2.3895	1.6932	0.0422	1.0192		Coeff. of Var. [%] _{norm}	1.0192	1.7951
Min.					61.25	14154	1.496	0.150		Min.	0.0100	61.05
Max.					65.87	14871	1.498	0.154		Max.	0.0103	64.38
Number of Spec.					6	6	6	6		Number of Spec.	6	6

AITR1392-8HQ-OHT3-MH-RTD MTM45-1/4581-35% RW QUARTZ "OPEN HOLE TENSILE 3"				ACG-UK TEST RESULTS								
Tested Dry @ 75°F								normalizing t _{ply} [in] 0.0103				
Specimen	ACG	ACG Cure	Prepreg	Cure Cycle	Strength	Load	Avg Width	Avg Thickness	# Plies in	Avg. t _{ply}	Strength _{norm}	
Number	Batch #	Cycle	Lot #	Batch #	[ksi]	(lbs)	(in)	(in)	Laminate	[in]	[ksi]	
1	A	MH1	1	1	47.57	10883	1.498	0.153	15	0.01020	47.108	
2	A	MH1	1	1	48.81	11081	1.498	0.152	15	0.01013	48.020	
3	A	MH1	1	1	47.58	11018	1.496	0.155	15	0.01033	47.734	
4	A	MH2	1	2	45.64	10595	1.496	0.155	15	0.01033	45.788	
5	A	MH2	1	2	46.52	10577	1.496	0.152	15	0.01013	45.767	
6	A	MH2	1	2	44.86	10337	1.497	0.154	15	0.01027	44.715	
Average					46.83	10749	1.4968	0.154	Average _{norm}		0.0102	46.52
Standard Dev.					1.4439	291.0613	0.0010	0.0014	Standard Dev. _{norm}		0.0001	1.2986
Coeff. of Var. [%]					3.0832	2.7079	0.0657	0.8980	Coeff. of Var. [%] _{norm}		0.8980	2.7914
Min.					44.86	10337	1.496	0.152	Min.		0.0101	44.71
Max.					48.81	11081	1.498	0.155	Max.		0.0103	48.02
Number of Spec.					6	6	6	6	Number of Spec.		6	6

AITR1392-8HQ-OHT3-MH-ETW2 MTM45-1/4581-35% RW QUARTZ "OPEN HOLE TENSILE 3" Tested Hot/Wet @ 250°F					ACG-UK TEST RESULTS					normalizing t_{ply} [in] 0.0103		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Load (lbs)	Avg Width (in)	Avg Thickness (in)	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	A	MH1	1	1	15.80	3649	1.496	0.154	15	0.01027	15.749	
2	A	MH1	1	1	16.42	3734	1.496	0.152	15	0.01013	16.154	
3	A	MH1	1	1	15.83	3599	1.496	0.152	15	0.01013	15.574	
4	A	MH2	1	2	15.80	3568	1.497	0.151	15	0.01007	15.442	
5	A	MH2	1	2	15.33	3541	1.496	0.154	15	0.01027	15.280	
6	A	MH2	1	2	15.58	3516	1.497	0.151	15	0.01007	15.227	
Average					15.79	3601	1.496	0.152		Average _{norm}	0.0102	15.57
Standard Dev.					0.3618	79.8885	0.0005	0.0014		Standard Dev. _{norm}	0.0001	0.3439
Coeff. of Var. [%]					2.2906	2.2184	0.0345	0.8969		Coeff. of Var. [%] _{norm}	0.8969	2.2084
Min.					15.33	3516	1.496	0.151		Min.	0.0101	15.23
Max.					16.42	3734	1.497	0.154		Max.	0.0103	16.15
Number of Spec.					6	6	6	6		Number of Spec.	6	6

AITR1392-8HQ-FHT1-MH-CTD MTM45-1/4581-35% RW QUARTZ "FILLED HOLE TENSILE 1" Tested Cold/Dry @ -65°F					ACG-UK TEST RESULTS					normalizing t_{ply} [in] 0.0103		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Load (lbs)	Avg Width (in)	Avg Thickness (in)	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	A	MH1	1	1	53.29	9573	1.496	0.120	12	0.01000	51.738	
2	A	MH1	1	1	54.84	9921	1.497	0.121	12	0.01008	53.686	
3	A	MH1	1	1	55.08	9951	1.500	0.120	12	0.01000	53.476	
4	A	MH2	1	2	53.81	9638	1.496	0.120	12	0.01000	52.243	
5	A	MH2	1	2	53.89	9683	1.496	0.120	12	0.01000	52.320	
6	A	MH2	1	2	55.42	9964	1.497	0.120	12	0.01000	53.806	
7	B	MH1	2	1	54.19	10056	1.496	0.124	12	0.01033	54.365	
8	B	MH1	2	1	53.75	9912	1.496	0.123	12	0.01025	53.489	
9	B	MH1	2	1	53.77	9987	1.498	0.124	12	0.01033	53.944	
10	B	MH2	2	2	54.45	10036	1.496	0.123	12	0.01025	54.186	
11	B	MH2	2	2	54.67	10094	1.498	0.123	12	0.01025	54.405	
12	B	MH2	2	2	56.04	10303	1.497	0.123	12	0.01025	55.768	
13	C	MH1	3	1	52.14	9636	1.495	0.124	12	0.01033	52.309	
14	C	MH1	3	1	51.96	9659	1.499	0.124	12	0.01033	52.128	
15	C	MH1	3	1	52.34	9737	1.495	0.124	12	0.01033	52.509	
16	C	MH2	3	2	51.16	9584	1.496	0.125	12	0.01042	51.739	
17	C	MH2	3	2	51.84	9746	1.497	0.126	12	0.01050	52.847	
18	C	MH2	3	2	51.88	9656	1.496	0.124	12	0.01033	52.048	
Average					53.58	9841	1.497	0.123		Averagenorm	0.0102	53.17
Standard Dev.					1.4121	210.734	0.0013	0.0020		Standard Dev.norm	0.0002	1.1247
Coeff. of Var. [%]					2.6353	2.1414	0.0882	1.6063		Coeff. of Var. [%]norm	1.6063	2.1155
Min.					51.16	9573	1.495	0.120		Min.	0.0100	51.74
Max.					56.04	10303	1.500	0.126		Max.	0.0105	55.77
Number of Spec.					18	18	18	18		Number of Spec.	18	18

AITR1392-8HQ-FHT1-MH-RTD MTM45-1/4581-35% RW QUARTZ "FILLED HOLE TENSILE 1"					ACG-UK TEST RESULTS					normalizing t _{ply} [in] 0.0103		
Tested Dry @ 75°F												
Specimen	ACG	ACG Cure	Prepreg	Cure Cycle	Strength	Load	Avg Width	Avg Thickness	# Plies in	Avg. t _{ply}	Strength _{norm}	
Number	Batch #	Cycle	Lot #	Batch #	[ksi]	(lbs)	(in)	(in)	Laminate	[in]	[ksi]	
1	A	MH1	1	1	46.06	8252	1.497	0.120	12	0.01000	44.718	
2	A	MH1	1	1	45.87	8299	1.497	0.121	12	0.01008	44.905	
3	A	MH1	1	1	45.12	8203	1.499	0.121	12	0.01008	44.171	
4	A	MH2	1	2	44.44	8066	1.497	0.121	12	0.01008	43.505	
5	A	MH2	1	2	44.86	8066	1.497	0.120	12	0.01000	43.553	
6	A	MH2	1	2	44.91	8045	1.497	0.120	12	0.01000	43.602	
Average					45.21	8155	1.4973	0.121		Average _{norm}	0.0100	44.08
Standard Dev.					0.6279	109.9007	0.0008	0.0005		Standard Dev. _{norm}	0.0000	0.6217
Coeff. of Var. [%]					1.3890	1.3476	0.0545	0.4545		Coeff. of Var. [%] _{norm}	0.4545	1.4106
Min.					44.44	8045	1.497	0.120		Min.	0.0100	43.51
Max.					46.06	8299	1.499	0.121		Max.	0.0101	44.91
Number of Spec.					6	6	6	6		Number of Spec.	6	6

AITR1392-8HQ-IPS-MH-CTD MTM45-1/4581-35% RW QUARTZ "IN-PLANE SHEAR Strength @ 5% Shear Strain"					ACG-UK TEST RESULTS					normalizing t _{ply} [in] 0.0103		
Tested Cold/Dry @ -65°F												
Specimen	ACG	ACG Cure	Prepreg	Cure Cycle	Strength	Modulus	Poisson's	Avg. Specimen	# Plies in	Avg. t _{ply}	Strength _{norm}	
Number	Batch #	Cycle	Lot #	Batch #	[ksi]	Msi	Ratio	Thickn. [in]	Laminate	[in]	[ksi]	
1	A	MH1	1	1	25.18	0.76	0.499	0.0820	8	0.01025	25.058	
2	A	MH1	1	1	25.03	0.73	0.450	0.0810	8	0.01013	24.605	
3	A	MH1	1	1	25.28	0.75	0.449	0.0820	8	0.01025	25.157	
4	A	MH1	1	1	25.66	0.75	0.441	0.0820	8	0.01025	25.535	
5	A	MH2	1	2	25.91	0.71	0.444	0.0820	8	0.01025	25.784	
6	A	MH2	1	2	25.78	0.76	0.465	0.0820	8	0.01025	25.655	
7	A	MH2	1	2	26.08	NR	NR	0.0810	8	0.01013	25.637	
8	A	MH2	1	2	26.12	0.73	0.478	0.0820	8	0.01025	25.993	
9	B	MH1	2	1	23.88	0.70	0.416	0.0840	8	0.01050	24.344	
10	B	MH1	2	1	23.64	0.71	0.518	0.0840	8	0.01050	24.099	
11	B	MH1	2	1	25.76	0.77	0.496	0.0800	8	0.01000	25.010	
12	B	MH1	2	1	23.37	0.71	0.459	0.0850	8	0.01063	24.107	
13	B	MH2	2	2	23.59	0.73	0.469	0.0810	8	0.01013	23.189	
14	B	MH2	2	2	22.74	0.69	0.445	0.0830	8	0.01038	22.906	
15	B	MH2	2	2	23.14	0.68	0.424	0.0830	8	0.01038	23.308	
16	B	MH2	2	2	22.48	0.70	0.421	0.0830	8	0.01038	22.644	
17	C	MH1	3	1	24.27	0.74	0.494	0.0820	8	0.01025	24.152	
18	C	MH1	3	1	23.77	NR	NR	0.0820	8	0.01025	23.655	
19	C	MH1	3	1	23.70	0.75	0.471	0.0810	8	0.01013	23.297	
20	C	MH1	3	1	24.11	0.72	0.444	0.0820	8	0.01025	23.993	
21	C	MH2	3	2	25.08	0.79	0.455	0.0790	8	0.00988	24.045	
22	C	MH2	3	2	25.72	0.81	0.397	0.0820	8	0.01025	25.595	
23	C	MH2	3	2	25.23	NR	NR	0.0830	8	0.01038	25.414	
24	C	MH2	3	2	26.16	NR	NR	0.0830	8	0.01038	26.350	
Average					24.65	0.7345	0.4568	0.0821	Average _{norm}		0.0103	24.56
Standard Dev.					1.1650	0.0336	0.0306	0.0013	Standard Dev. _{norm}		0.0002	1.0665
Coeff. of Var. [%]					4.7255	4.5793	6.6906	1.5780	Coeff. of Var. [%] _{norm}		1.5780	4.3419
Min.					22.48	0.6800	0.3970	0.0790	Min.		0.0099	22.64
Max.					26.16	0.8100	0.5180	0.0850	Max.		0.0106	26.35
Number of Spec.					24	20	20	24	Number of Spec.		24	24

AITR1392-8HQ-IPS-MH-RTD MTM45-1/4581-35% RW QUARTZ "IN-PLANE SHEAR Strength @ 5% Shear Strain"				ACG-UK TEST RESULTS						normalizing t _{ply} [in] 0.0103		
Tested Dry @ 75°F												
Specimen	ACG	ACG Cure	Prepreg	Cure Cycle	Strength	Modulus	Poisson's	Avg. Specimen	# Plies in	Avg. t _{ply}	Strength _{norm}	
Number	Batch #	Cycle	Lot #	Batch #	[ksi]	Msi	Ratio	Thickn. [in]	Laminate	[in]	[ksi]	
1	A	MH1	1	1	19.05	0.60	0.539	0.0820	8	0.01025	18.958	
2	A	MH1	1	1	18.90	0.58	0.519	0.0820	8	0.01025	18.808	
3	A	MH1	1	1	19.35	0.58	0.518	0.0810	8	0.01013	19.021	
4	A	MH2	1	2	18.53	0.58	0.542	0.0810	8	0.01013	18.215	
5	A	MH2	1	2	18.44	0.58	0.538	0.0830	8	0.01038	18.574	
6	A	MH2	1	2	19.55	0.59	0.537	0.0820	8	0.01025	19.455	
7	B	MH1	2	1	19.15	0.60	0.529	0.0820	8	0.01025	19.057	
8	B	MH1	2	1	18.42	0.59	0.504	0.0840	8	0.01050	18.778	
9	B	MH1	2	1	18.96	0.59	0.521	0.0830	8	0.01038	19.098	
10	B	MH2	2	2	18.11	0.56	0.529	0.0830	8	0.01038	18.242	
11	B	MH2	2	2	17.67	0.54	0.535	0.0830	8	0.01038	17.799	
12	B	MH2	2	2	17.93	0.52	0.516	0.0830	8	0.01038	18.061	
13	C	MH1	3	1	20.60	0.59	0.495	0.0810	8	0.01013	20.250	
14	C	MH1	3	1	20.08	0.60	0.506	0.0820	8	0.01025	19.983	
15	C	MH1	3	1	19.59	0.58	0.509	0.0840	8	0.01050	19.970	
16	C	MH2	3	2	21.03	0.61	0.496	0.0830	8	0.01038	21.183	
17	C	MH2	3	2	21.03	0.60	0.496	0.0830	8	0.01038	21.183	
18	C	MH2	3	2	22.70	0.63	0.488	0.0820	8	0.01025	22.590	
Average					19.39	0.5844	0.5176	0.0824	Average _{norm}		0.0103	19.40
Standard Dev.					1.2891	0.0250	0.0174	0.0009	Standard Dev. _{norm}		0.0001	1.2601
Coeff. of Var. [%]					6.6471	4.2815	3.3588	1.1181	Coeff. of Var. [%] _{norm}		1.1181	6.4951
Min.					17.67	0.5200	0.4880	0.0810	Min.		0.0101	17.80
Max.					22.70	0.6300	0.5420	0.0840	Max.		0.0105	22.59
Number of Spec.					18	18	18	18	Number of Spec.		18	18

AITR1392-8HQ-IPS-MH-ETW MTM45-1/4581-35% RW QUARTZ "IN-PLANE SHEAR Strength @ 5% Shear Strain" Tested Hot/Wet @ 200°F					ACG-UK TEST RESULTS					normalizing t_{ply} [in] 0.0103		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus Msi	Poisson's Ratio	Avg Thickness (in)	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	A	MH1	1	1	12.66	0.39	0.662	0.081	8	0.01013	12.445	
2	A	MH1	1	1	12.61	0.38	0.667	0.082	8	0.01025	12.549	
3	A	MH1	1	1	12.76	0.41	0.653	0.082	8	0.01025	12.698	
4	A	MH2	1	2	13.46	0.48	0.820	0.082	8	0.01025	13.395	
5	A	MH2	1	2	14.02	0.42	0.612	0.080	8	0.01000	13.612	
6	A	MH2	1	2	13.62	0.42	0.624	0.082	8	0.01025	13.554	
7	B	MH1	2	1	13.84	0.43	0.645	0.078	8	0.00975	13.101	
8	B	MH1	2	1	11.58	0.38	0.632	0.083	8	0.01038	11.664	
9	B	MH1	2	1	10.56	0.39	0.644	0.084	8	0.01050	10.765	
10	B	MH2	2	2	11.93	0.40	0.655	0.081	8	0.01013	11.727	
11	B	MH2	2	2	10.80	0.40	0.608	0.083	8	0.01038	10.879	
12	B	MH2	2	2	11.07	0.40	0.643	0.083	8	0.01038	11.151	
13	C	MH1	3	1	10.90	0.40	0.642	0.082	8	0.01025	10.847	
14	C	MH1	3	1	12.45	0.39	0.652	0.082	8	0.01025	12.390	
15	C	MH1	3	1	12.65	0.44	0.632	0.081	8	0.01013	12.435	
16	C	MH2	3	2	12.35	0.41	0.630	0.078	8	0.00975	11.691	
17	B	MH2	2	2	12.74	0.46	0.673	0.083	8	0.01038	12.833	
18	C	MH2	3	2	12.93	0.43	0.577	0.081	8	0.01013	12.710	
19	C	MH2	3	2	12.33	0.42	0.658	0.083	8	0.01038	12.420	
Average					12.38	0.41	0.649	0.082		Averagenorm	0.0102	12.26
Standard Dev.					1.0239	0.026	0.0474	0.0016		Standard Dev.norm	0.0002	0.9050
Coeff. of Var. [%]					8.2695	6.4064	7.2988	1.9673		Coeff. of Var. [%]norm	1.9673	7.3840
Min.					10.56	0	0.577	0.078		Min.	0.0098	10.77
Max.					14.02	0	0.820	0.084		Max.	0.0105	13.61
Number of Spec.					19	19	19	19		Number of Spec.	19	19

AITR1392-8HQ-IPS-MH-ETW2 MTM45-1/4581-35% RW QUARTZ "IN-PLANE SHEAR Strength @ 5% Shear Strain"					ACG-UK TEST RESULTS					normalizing t _{ply} [in] 0.0103		
Tested Hot/Wet @ 250°F												
Specimen	ACG	ACG Cure	Prepreg	Cure Cycle	Strength	Modulus	Poisson's	Avg. Specimen	# Plies in	Avg. t _{ply}	Strength _{norm}	
Number	Batch #	Cycle	Lot #	Batch #	[ksi]	Msi	Ratio	Thickn. [in]	Laminate	[in]	[ksi]	
1	A	MH1	1	1	10.15	NR	NR	0.0810	8	0.01013	9.978	
2	A	MH1	1	1	10.37	0.32	0.778	0.0820	8	0.01025	10.320	
3	A	MH1	1	1	10.20	0.34	0.799	0.0820	8	0.01025	10.150	
4	A	MH1	1	1	10.50	0.35	0.848	0.0810	8	0.01013	10.322	
5	A	MH2	1	2	10.68	NR	NR	0.0820	8	0.01025	10.628	
6	A	MH2	1	2	10.98	0.40	1.006	0.0820	8	0.01025	10.927	
7	A	MH2	1	2	10.55	0.37	0.812	0.0830	8	0.01038	10.627	
8	A	MH2	1	2	11.06	0.37	1.048	0.0820	8	0.01025	11.006	
9	B	MH1	2	1	9.51	0.34	0.747	0.0830	8	0.01038	9.579	
10	B	MH1	2	1	9.47	0.36	0.921	0.0840	8	0.01050	9.654	
11	B	MH1	2	1	9.31	0.35	0.819	0.0830	8	0.01038	9.378	
13	B	MH2	2	2	8.84	0.32	0.939	0.0840	8	0.01050	9.012	
14	B	MH2	2	2	8.74	0.31	0.817	0.0840	8	0.01050	8.910	
15	B	MH2	2	2	8.24	0.35	0.878	0.0830	8	0.01038	8.300	
17	C	MH1	3	1	9.37	NR	NR	0.0810	8	0.01013	9.211	
18	C	MH1	3	1	9.97	0.34	0.788	0.0810	8	0.01013	9.801	
19	C	MH1	3	1	9.68	NR	NR	0.0820	8	0.01025	9.633	
20	C	MH1	3	1	10.06	0.32	0.757	0.0820	8	0.01025	10.011	
21	C	MH2	3	2	10.69	0.34	0.905	0.0830	8	0.01038	10.768	
22	C	MH2	3	2	10.70	0.34	0.661	0.0830	8	0.01038	10.778	
23	C	MH2	3	2	10.93	0.37	0.942	0.0830	8	0.01038	11.010	
24	C	MH2	3	2	10.60	0.38	0.823	0.0830	8	0.01038	10.677	
Average					10.03	0.3483	0.8493	0.0825	Average _{norm}		0.0103	10.03
Standard Dev.					0.7869	0.0236	0.0969	0.0010	Standard Dev. _{norm}		0.0001	0.7583
Coeff. of Var. [%]					7.8480	6.7686	11.4082	1.1673	Coeff. of Var. [%] _{norm}		1.1673	7.5600
Min.					8.24	0.3100	0.6610	0.0810	Min.		0.0101	8.30
Max.					11.06	0.4000	1.0480	0.0840	Max.		0.0105	11.01
Number of Spec.					22	18	18	22	Number of Spec.		22	22

AITR1392-8HQ-SBS1-MH-CTD
MTM45-1/4581-35% RW QUARTZ
"INTERLAMINAR SHEAR (QSBS)"
90° SPECIMENS FROM "UNT1" LAMINATES

ACG-UK TEST RESULTS

Tested Cold/Dry @ -65°F

normalizing t_{ply}
[in]
0.0103

Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Load (lbs)	Avg Width (in)	Avg Thickness (in)	# Plies in Laminate
1	A	MH1	1	1	12.79	500	0.252	0.117	12
2	A	MH1	1	1	12.87	510	0.254	0.117	12
3	A	MH1	1	1	12.01	472	0.252	0.117	12
4	A	MH2	1	2	13.81	553	0.252	0.119	12
5	A	MH2	1	2	12.96	520	0.251	0.120	12
6	A	MH2	1	2	13.73	549	0.251	0.119	12
7	B	MH1	2	1	12.72	518	0.249	0.122	12
8	B	MH1	2	1	12.38	505	0.250	0.122	12
9	B	MH1	2	1	12.71	510	0.249	0.121	12
10	B	MH2	2	2	11.93	495	0.251	0.124	12
11	B	MH2	2	2	12.81	529	0.251	0.123	12
12	B	MH2	2	2	12.48	515	0.252	0.123	12
13	C	MH1	3	1	11.32	477	0.252	0.126	12
14	C	MH1	3	1	11.31	474	0.251	0.125	12
15	C	MH1	3	1	11.37	474	0.252	0.124	12
16	C	MH2	3	2	11.38	483	0.253	0.126	12
17	C	MH2	3	2	11.59	491	0.252	0.126	12
18	C	MH2	3	2	11.06	462	0.251	0.125	12

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.00975	12.107
0.00975	12.183
0.00975	11.369
0.00992	13.296
0.01000	12.583
0.00992	13.219
0.01017	12.555
0.01017	12.220
0.01008	12.443
0.01033	11.969
0.01025	12.748
0.01025	12.419
0.01050	11.540
0.01042	11.438
0.01033	11.407
0.01050	11.601
0.01050	11.815
0.01042	11.185

Average 12.29 502 0.251 0.122
Standard Dev. 0.8360 26.181 0.0012 0.0032
Coeff. of Var. [%] 6.8022 5.2148 0.4946 2.6223
Min. 11.06 462 0.249 0.117
Max. 13.81 553 0.254 0.126
Number of Spec. 18 18 18 18

Averagenorm 0.0102 12.12
Standard Dev.norm 0.0003 0.6292
Coeff. of Var. [%]norm 2.6223 5.1928
Min. 0.0098 11.19
Max. 0.0105 13.30
Number of Spec. 18 18

AITR1392-8HQ-SBS1-MH-RTD
MTM45-1/4581-35% RW QUARTZ
"INTERLAMINAR SHEAR (QSBS)"
90° SPECIMENS FROM "UNT1" LAMINATES

ACG-UK TEST RESULTS

Tested Dry @ 75°F

normalizing t_{ply}

[in]

0.0103

Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Load (lbs)	Avg Width (in)	Avg Thickness (in)	# Plies in Laminate
1	A	MH1	1	1	10.12	396	0.252	0.116	12
2	A	MH1	1	1	10.35	406	0.254	0.116	12
3	A	MH1	1	1	10.06	397	0.253	0.117	12
4	A	MH2	1	2	10.34	419	0.251	0.121	12
5	A	MH2	1	2	10.34	415	0.252	0.120	12
6	A	MH2	1	2	10.54	430	0.252	0.121	12
7	B	MH1	2	1	10.53	426	0.250	0.121	12
8	B	MH1	2	1	10.45	425	0.250	0.122	12
9	B	MH1	2	1	10.47	428	0.250	0.123	12
10	B	MH2	2	2	10.32	427	0.252	0.123	12
11	B	MH2	2	2	10.23	421	0.252	0.122	12
12	B	MH2	2	2	10.33	432	0.252	0.124	12
13	C	MH1	3	1	9.80	408	0.251	0.124	12
14	C	MH1	3	1	9.95	415	0.251	0.124	12
15	C	MH1	3	1	9.96	418	0.251	0.126	12
16	C	MH2	3	2	9.74	412	0.251	0.126	12
17	C	MH2	3	2	10.00	426	0.252	0.127	12
18	C	MH2	3	2	10.09	422	0.252	0.124	12

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.00967	9.498
0.00967	9.714
0.00975	9.523
0.01008	10.122
0.01000	10.039
0.01008	10.318
0.01008	10.308
0.01017	10.315
0.01025	10.419
0.01025	10.270
0.01017	10.098
0.01033	10.363
0.01033	9.832
0.01033	9.982
0.01050	10.153
0.01050	9.929
0.01058	10.275
0.01033	10.123

Average 10.20 418 0.252 0.122
Standard Dev. 0.2454 10.702 0.0010 0.0032
Coeff. of Var. [%] 2.4054 2.5606 0.4141 2.6581
Min. 9.74 396 0.250 0.116
Max. 10.54 432 0.254 0.127
Number of Spec. 18 18 18 18

Averagenorm 0.0102 10.07
Standard Dev.norm 0.0003 0.2787
Coeff. of Var. [%]norm 2.6581 2.7678
Min. 0.0097 9.50
Max. 0.0106 10.42
Number of Spec. 18 18

AITR1392-8HQ-SBS1-MH-ETW
MTM45-1/4581-35% RW QUARTZ
"INTERLAMINAR SHEAR (QSBS)"
90° SPECIMENS FROM "UNT1" LAMINATES

ACG-UK TEST RESULTS

Tested Hot/Wet @ 200°F

normalizing t_{ply}
[in]
0.0103

Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Load (lbs)	Avg Width (in)	Avg Thickness (in)	# Plies in Laminate
1	A	MH1	1	1	5.37	203	0.252	0.113	12
2	A	MH1	1	1	5.61	212	0.252	0.113	12
3	A	MH1	1	1	5.32	209	0.253	0.117	12
4	A	MH2	1	2	5.98	242	0.252	0.120	12
5	A	MH2	1	2	5.30	213	0.252	0.120	12
6	A	MH2	1	2	5.86	237	0.252	0.120	12
7	B	MH1	2	1	4.67	189	0.250	0.121	12
8	B	MH1	2	1	4.68	193	0.248	0.124	12
9	B	MH1	2	1	4.71	194	0.251	0.123	12
10	B	MH2	2	2	4.64	194	0.252	0.124	12
11	B	MH2	2	2	4.86	201	0.252	0.123	12
12	B	MH2	2	2	4.57	188	0.253	0.122	12
13	C	MH1	3	1	4.57	190	0.251	0.124	12
14	C	MH1	3	1	4.84	202	0.252	0.124	12
15	C	MH1	3	1	4.69	196	0.252	0.124	12
16	C	MH2	3	2	4.69	198	0.252	0.125	12
17	C	MH2	3	2	4.61	195	0.252	0.126	12
18	C	MH2	3	2	4.90	207	0.251	0.126	12

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.00942	4.909
0.00942	5.129
0.00975	5.036
0.01000	5.806
0.01000	5.146
0.01000	5.689
0.01008	4.572
0.01033	4.695
0.01025	4.687
0.01033	4.655
0.01025	4.836
0.01017	4.511
0.01033	4.585
0.01033	4.856
0.01033	4.705
0.01042	4.743
0.01050	4.700
0.01050	4.995

Average 4.99 204 0.252 0.122
Standard Dev. 0.4598 15.147 0.0011 0.0039
Coeff. of Var. [%] 9.2102 7.4434 0.4550 3.2175
Min. 4.57 188 0.248 0.113
Max. 5.98 242 0.253 0.126
Number of Spec. 18 18 18 18

Averagenorm 0.0101 4.90
Standard Dev.norm 0.0003 0.3596
Coeff. of Var. [%]norm 3.2175 7.3342
Min. 0.0094 4.51
Max. 0.0105 5.81
Number of Spec. 18 18

AITR1392-8HQ-SBS1-MH-ETW2
MTM45-1/4581-35% RW QUARTZ
"INTERLAMINAR SHEAR (QSBS)"
90° SPECIMENS FROM "UNT1" LAMINATES

ACG-UK TEST RESULTS

Tested Hot/Wet @ 250°F

normalizing t_{ply}

[in]

0.0103

Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Load (lbs)	Avg Width (in)	Avg Thickness (in)	# Plies in Laminate
1	A	MH1	1	1	4.66	185	0.254	0.118	12
2	A	MH1	1	1	4.69	182	0.252	0.115	12
3	A	MH1	1	1	4.69	184	0.252	0.117	12
4	A	MH2	1	2	4.77	193	0.252	0.120	12
5	A	MH2	1	2	4.61	187	0.252	0.121	12
6	A	MH2	1	2	4.73	193	0.253	0.121	12
7	B	MH1	2	1	4.17	167	0.249	0.121	12
8	B	MH1	2	1	4.11	170	0.250	0.124	12
9	B	MH1	2	1	4.31	177	0.250	0.123	12
10	B	MH2	2	2	4.14	172	0.252	0.124	12
11	B	MH2	2	2	4.08	171	0.252	0.125	12
12	B	MH2	2	2	4.12	172	0.252	0.124	12
13	C	MH1	3	1	3.97	162	0.253	0.121	12
14	C	MH1	3	1	4.03	168	0.251	0.125	12
15	C	MH1	3	1	4.05	167	0.249	0.124	12
16	C	MH2	3	2	3.96	169	0.252	0.126	12
17	C	MH2	3	2	4.00	169	0.250	0.127	12
18	C	MH2	3	2	4.08	173	0.251	0.127	12

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.00983	4.449
0.00958	4.364
0.00975	4.440
0.01000	4.631
0.01008	4.513
0.01008	4.631
0.01008	4.082
0.01033	4.123
0.01025	4.289
0.01033	4.153
0.01042	4.126
0.01033	4.133
0.01008	3.886
0.01042	4.076
0.01033	4.063
0.01050	4.037
0.01058	4.110
0.01058	4.192

Average 4.29 176 0.251 0.122
Standard Dev. 0.3059 9.394 0.0014 0.0034
Coeff. of Var. [%] 7.1347 5.3495 0.5494 2.7763
Min. 3.96 162 0.249 0.115
Max. 4.77 193 0.254 0.127
Number of Spec. 18 18 18 18

Averagenorm 0.0102 4.24
Standard Dev.norm 0.0003 0.2163
Coeff. of Var. [%]norm 2.7763 5.1021
Min. 0.0096 3.89
Max. 0.0106 4.63
Number of Spec. 18 18

AITR1392-8HQ-SBS-MH-CTD MTM45-1/4581-35% RW QUARTZ "INTERLAMINAR SHEAR (SBS)" 90° SPECIMENS FROM "FT" LAMINATES					ACG-UK TEST RESULTS					normalizing t _{ply} [in] 0.0103				
Tested Cold/Dry @ -65°F														
Specimen	ACG	ACG Cure	Prepreg	Cure Cycle	Strength	Load	Avg Width	Avg Thickness	# Plies in					
Number	Batch #	Cycle	Lot #	Batch #	[ksi]	(lbs)	(in)	(in)	Laminate	Avg. t _{ply}	Strength _{norm}			
1	D	MH1	4	1	14.04	588	0.252	0.125	12	0.01042	14.199			
2	D	MH1	4	1	14.36	608	0.251	0.126	12	0.01050	14.639			
3	D	MH1	4	1	13.87	582	0.250	0.126	12	0.01050	14.139			
4	A	MH2	1	2	13.71	576	0.250	0.126	12	0.01050	13.976			
5	A	MH2	1	2	13.73	578	0.250	0.126	12	0.01050	13.997			
6	A	MH2	1	2	13.49	567	0.250	0.126	12	0.01050	13.752			
7	B	MH1	2	1	13.63	561	0.250	0.123	12	0.01025	13.564			
8	B	MH1	2	1	13.47	553	0.249	0.124	12	0.01033	13.514			
9	B	MH1	2	1	13.06	537	0.251	0.123	12	0.01025	12.997			
10	B	MH2	2	2	13.56	562	0.249	0.125	12	0.01042	13.714			
11	B	MH2	2	2	13.51	557	0.249	0.124	12	0.01033	13.554			
12	B	MH2	2	2	13.46	554	0.251	0.123	12	0.01025	13.395			
13	C	MH1	3	1	12.70	514	0.250	0.121	12	0.01008	12.433			
14	C	MH1	3	1	12.29	518	0.250	0.126	12	0.01050	12.529			
15	C	MH1	3	1	12.55	509	0.250	0.122	12	0.01017	12.388			
16	C	MH2	3	2	12.69	531	0.249	0.126	12	0.01050	12.936			
17	C	MH2	3	2	12.06	507	0.250	0.126	12	0.01050	12.294			
18	C	MH2	3	2	12.22	514	0.250	0.126	12	0.01050	12.457			
Average					13.24	551	0.250	0.125	Averagenorm				0.0104	13.36
Standard Dev.					0.6722	30.275	0.0008	0.0016	Standard Dev.norm				0.0001	0.7225
Coeff. of Var. [%]					5.0752	5.4957	0.3209	1.3195	Coeff. of Var. [%]norm				1.3195	5.4077
Min.					12.06	507	0.249	0.121	Min.				0.0101	12.29
Max.					14.36	608	0.252	0.126	Max.				0.0105	14.64
Number of Spec.					18	18	18	18	Number of Spec.				18	18

AITR1392-8HQ-SBS-MH-RTD MTM45-1/4581-35% RW QUARTZ "INTERLAMINAR SHEAR (SBS)" 90° SPECIMENS FROM "FT" LAMINATES					ACG-UK TEST RESULTS					normalizing t _{ply} [in] 0.0103		
Tested Dry @ 75°F												
Specimen	ACG	ACG Cure	Prepreg	Cure Cycle	Strength	Load	Avg Width	Avg Thickness	# Plies in	Avg. t _{ply}	Strength _{norm}	
Number	Batch #	Cycle	Lot #	Batch #	[ksi]	(lbs)	(in)	(in)	Laminate	[in]	[ksi]	
1	D	MH1	4	1	11.05	457	0.250	0.124	12	0.01033	11.086	
2	D	MH1	4	1	10.99	467	0.251	0.127	12	0.01058	11.292	
3	D	MH1	4	1	10.90	462	0.252	0.126	12	0.01050	11.112	
4	A	MH2	1	2	10.91	462	0.252	0.126	12	0.01050	11.122	
5	A	MH2	1	2	10.66	453	0.250	0.128	12	0.01067	11.039	
6	A	MH2	1	2	10.78	452	0.249	0.126	12	0.01050	10.989	
7	B	MH1	2	1	10.69	434	0.250	0.122	12	0.01017	10.552	
8	B	MH1	2	1	10.72	436	0.250	0.122	12	0.01017	10.581	
9	B	MH1	2	1	10.66	439	0.250	0.123	12	0.01025	10.608	
10	B	MH2	2	2	10.76	439	0.249	0.123	12	0.01025	10.708	
11	B	MH2	2	2	10.83	451	0.251	0.124	12	0.01033	10.865	
12	B	MH2	2	2	10.41	431	0.251	0.124	12	0.01033	10.444	
13	C	MH1	3	1	10.67	445	0.251	0.125	12	0.01042	10.791	
14	C	MH1	3	1	10.79	453	0.250	0.126	12	0.01050	11.000	
15	C	MH1	3	1	10.73	458	0.251	0.128	12	0.01067	11.112	
16	C	MH2	3	2	10.32	439	0.248	0.128	12	0.01067	10.687	
17	C	MH2	3	2	10.42	439	0.250	0.126	12	0.01050	10.622	
18	C	MH2	3	2	10.40	437	0.250	0.126	12	0.01050	10.602	
Average					10.71	447	0.250	0.125		Averagenorm	0.0104	10.85
Standard Dev.					0.2069	11.078	0.0010	0.0020		Standard Dev.norm	0.0002	0.2530
Coeff. of Var. [%]					1.9326	2.4759	0.4067	1.5629		Coeff. of Var. [%]norm	1.5629	2.3327
Min.					10.32	431	0.248	0.122		Min.	0.0102	10.44
Max.					11.05	467	0.252	0.128		Max.	0.0107	11.29
Number of Spec.					18	18	18	18		Number of Spec.	18	18

AITR1392-8HQ-SBS-MH-ETW MTM45-1/4581-35% RW QUARTZ "INTERLAMINAR SHEAR (SBS)" 90° SPECIMENS FROM "FT" LAMINATES					ACG-UK TEST RESULTS					normalizing t _{ply} [in] 0.0103				
Tested Hot/Wet @ 200°F														
Specimen	ACG	ACG Cure	Prepreg	Cure Cycle	Strength	Load	Avg Width	Avg Thickness	# Plies in					
Number	Batch #	Cycle	Lot #	Batch #	[ksi]	(lbs)	(in)	(in)	Laminate	Avg. t _{ply} [in]	Strength _{norm} [ksi]			
1	D	MH1	4	1	6.17	260	0.251	0.126	12	0.01050	6.290			
2	D	MH1	4	1	6.47	269	0.248	0.126	12	0.01050	6.596			
3	D	MH1	4	1	6.34	267	0.251	0.126	12	0.01050	6.463			
4	A	MH2	1	2	6.28	267	0.251	0.127	12	0.01058	6.453			
5	A	MH2	1	2	6.15	261	0.250	0.127	12	0.01058	6.319			
6	A	MH2	1	2	6.28	267	0.250	0.127	12	0.01058	6.453			
7	B	MH1	2	1	5.14	211	0.250	0.123	12	0.01025	5.115			
8	B	MH1	2	1	5.35	217	0.250	0.122	12	0.01017	5.281			
9	B	MH1	2	1	5.23	211	0.249	0.121	12	0.01008	5.120			
10	B	MH2	2	2	5.47	227	0.251	0.124	12	0.01033	5.488			
11	B	MH2	2	2	5.53	229	0.250	0.124	12	0.01033	5.548			
12	B	MH2	2	2	5.33	220	0.251	0.123	12	0.01025	5.304			
13	C	MH1	3	1	5.47	230	0.251	0.126	12	0.01050	5.576			
14	C	MH1	3	1	5.56	235	0.250	0.127	12	0.01058	5.713			
15	C	MH1	3	1	5.44	228	0.251	0.125	12	0.01042	5.502			
16	C	MH2	3	2	5.21	221	0.249	0.128	12	0.01067	5.395			
17	C	MH2	3	2	5.16	222	0.251	0.128	12	0.01067	5.344			
18	C	MH2	3	2	5.02	211	0.249	0.126	12	0.01050	5.117			
Average					5.64	236	0.250	0.125	Averagenorm				0.0104	5.73
Standard Dev.					0.4883	22.117	0.0009	0.0021	Standard Dev.norm				0.0002	0.5385
Coeff. of Var. [%]					8.6506	9.3605	0.3692	1.6420	Coeff. of Var. [%]norm				1.6420	9.4036
Min.					5.02	211	0.248	0.121	Min.				0.0101	5.12
Max.					6.47	269	0.251	0.128	Max.				0.0107	6.60
Number of Spec.					18	18	18	18	Number of Spec.				18	18

AITR1392-8HQ-SBS-MH-ETW2 MTM45-1/4581-35% RW QUARTZ "INTERLAMINAR SHEAR (SBS)" 90° SPECIMENS FROM "FT" LAMINATES										ACG-UK TEST RESULTS		
Tested Hot/Wet @ 250°F										normalizing t_{ply} [in] 0.0103		
Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Load (lbs)	Avg Width (in)	Avg Thickness (in)	# Plies in Laminate	Avg. t_{ply} [in]	Strength _{norm} [ksi]	
1	D	MH1	4	1	5.41	228	0.251	0.126	12	0.01050	5.515	
2	D	MH1	4	1	5.37	223	0.252	0.124	12	0.01033	5.387	
3	D	MH1	4	1	5.26	209	0.252	0.119	12	0.00992	5.064	
4	A	MH2	1	2	5.08	215	0.249	0.127	12	0.01058	5.220	
5	A	MH2	1	2	5.21	220	0.250	0.126	12	0.01050	5.311	
6	A	MH2	1	2	4.95	209	0.252	0.126	12	0.01050	5.046	
7	B	MH1	2	1	4.57	189	0.250	0.124	12	0.01033	4.585	
8	B	MH1	2	1	4.68	195	0.251	0.124	12	0.01033	4.695	
9	B	MH1	2	1	4.24	174	0.250	0.123	12	0.01025	4.219	
10	B	MH2	2	2	4.39	183	0.250	0.125	12	0.01042	4.440	
11	B	MH2	2	2	4.59	188	0.250	0.123	12	0.01025	4.568	
12	B	MH2	2	2	4.50	187	0.250	0.124	12	0.01033	4.515	
13	C	MH1	3	1	4.72	198	0.250	0.126	12	0.01050	4.812	
14	C	MH1	3	1	4.83	203	0.249	0.126	12	0.01050	4.924	
15	C	MH1	3	1	4.81	203	0.251	0.126	12	0.01050	4.903	
16	C	MH2	3	2	4.44	185	0.248	0.126	12	0.01050	4.526	
17	C	MH2	3	2	4.57	195	0.250	0.128	12	0.01067	4.733	
18	C	MH2	3	2	4.53	193	0.250	0.128	12	0.01067	4.691	
Average					4.79	200	0.250	0.125		Averagenorm	0.0104	4.84
Standard Dev.					0.3531	15.038	0.0011	0.0021		Standard Dev.norm	0.0002	0.3572
Coeff. of Var. [%]					7.3784	7.5254	0.4291	1.7012		Coeff. of Var. [%]norm	1.7012	7.3783
Min.					4.24	174	0.248	0.119		Min.	0.0099	4.22
Max.					5.41	228	0.252	0.128		Max.	0.0107	5.52
Number of Spec.					18	18	18	18		Number of Spec.	18	18

end of mtm45-1 4581 quartz data -- nothing follows

Warp Tension Properties (WT) -- (CTD)
Strength & Modulus
 MTM45/ 6K5HS AS4C Fabric

normalizing t_{ply}
 [in]
 0.0153

Specimen Number	ACG Batch #	ACG Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thicken. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
CAJ1116B	A	MH1	1	1	127.924	9.005	0.055	0.122	8	LWT/AGM/LWB	0.01521	127.157	8.951
CAJ1117B	A	MH1	1	1	124.281	8.985	0.051	0.120	8	LGT/LWB	0.01505	122.250	8.838
CAJ1118B	A	MH1	1	1	124.199	9.301	0.065	0.121	8	AWT/LGM	0.01508	122.373	9.164
CAJ1226B	A	MH2	1	2	124.220	8.887	0.063	0.124	8	LWB/LGM	0.01545	125.438	8.974
CAJ1227B	A	MH2	1	2	118.859	8.981	0.066	0.124	8	LWT/LWB/LGM	0.01545	120.024	9.069
CAJ1228B	A	MH2	1	2	130.362	9.217	0.067	0.124	8	LGM/LWB	0.01548	131.871	9.324
CAJ2111B	B	MH1	2	3	127.187	9.193	0.060	0.121	8	LWB/LWT	0.01517	126.114	9.115
CAJ2112B	B	MH1	2	3	125.727	9.606	0.064	0.123	8	LWB/LWB	0.01535	126.172	9.640
CAJ2113B	B	MH1	2	3	125.469	9.317		0.124	8	LGM/AGM	0.01554	127.468	9.465
CAJ2114B	B	MH1	2	3	118.746	9.383	0.071	0.124	8	LWB/LWT	0.01549	120.202	9.498
CAJ2211B	B	MH2	2	4	131.372	9.618	0.066	0.119	8	LWB	0.01493	128.152	9.382
CAJ2214B	B	MH2	2	4	129.312			0.122	8	LWB/LWT	0.01530	129.312	
CAJ2215B	B	MH2	2	4	126.032	9.441	0.062	0.123	8	LGM	0.01537	126.581	9.482
CAJ3115B	C	MH1	3	5	121.641	9.131	0.058	0.123	8	LWB/LWT	0.01534	121.939	9.153
CAJ3116B	C	MH1	3	5	126.135	9.042	0.057	0.123	8	LWT/LWB	0.01533	126.392	9.060
CAJ3117B	C	MH1	3	5	134.082	8.932		0.122	8	LIT/LGM/LWB	0.01527	133.845	8.916
CAJ3211B	C	MH2	3	6	127.169	9.244		0.121	8	LWT/LWB	0.01517	126.095	9.166
CAJ3212B	C	MH2	3	6	129.769	9.185		0.123	8	DWB/AWB/LWT	0.01534	130.123	9.210
CAJ3214B	C	MH2	3	6	125.359	8.976	0.054	0.123	8	LIT/AGM/AWB	0.01534	125.683	8.999

Average 126.202 9.191 0.061
 Standard Dev. 3.922 0.222 0.006
 Coeff. of Var. [%] 3.107 2.416 9.235
 Min. 118.746 8.887 0.051
 Max. 134.082 9.618 0.071
 Number of Spec. 19 18 14

Average_{norm} 0.01530 126.168 9.189
 Standard Dev._{norm} 3.694 0.229
 Coeff. of Var. [%]_{norm} 2.927 2.493
 Min. 0.0149 120.024 8.838
 Max. 0.0155 133.845 9.640
 Number of Spec. 19 18